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#militarymodelcraftinternational

100  
PAGES



## ARMOUR IN PROFILE

Kings of Battle The M110 and  
M107 in the Cold War

ISSN 2631-7222



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## Shot Kal Dalet

Centurion Buffs  
— IDF Style

Building classic  
German Armour

# Blast

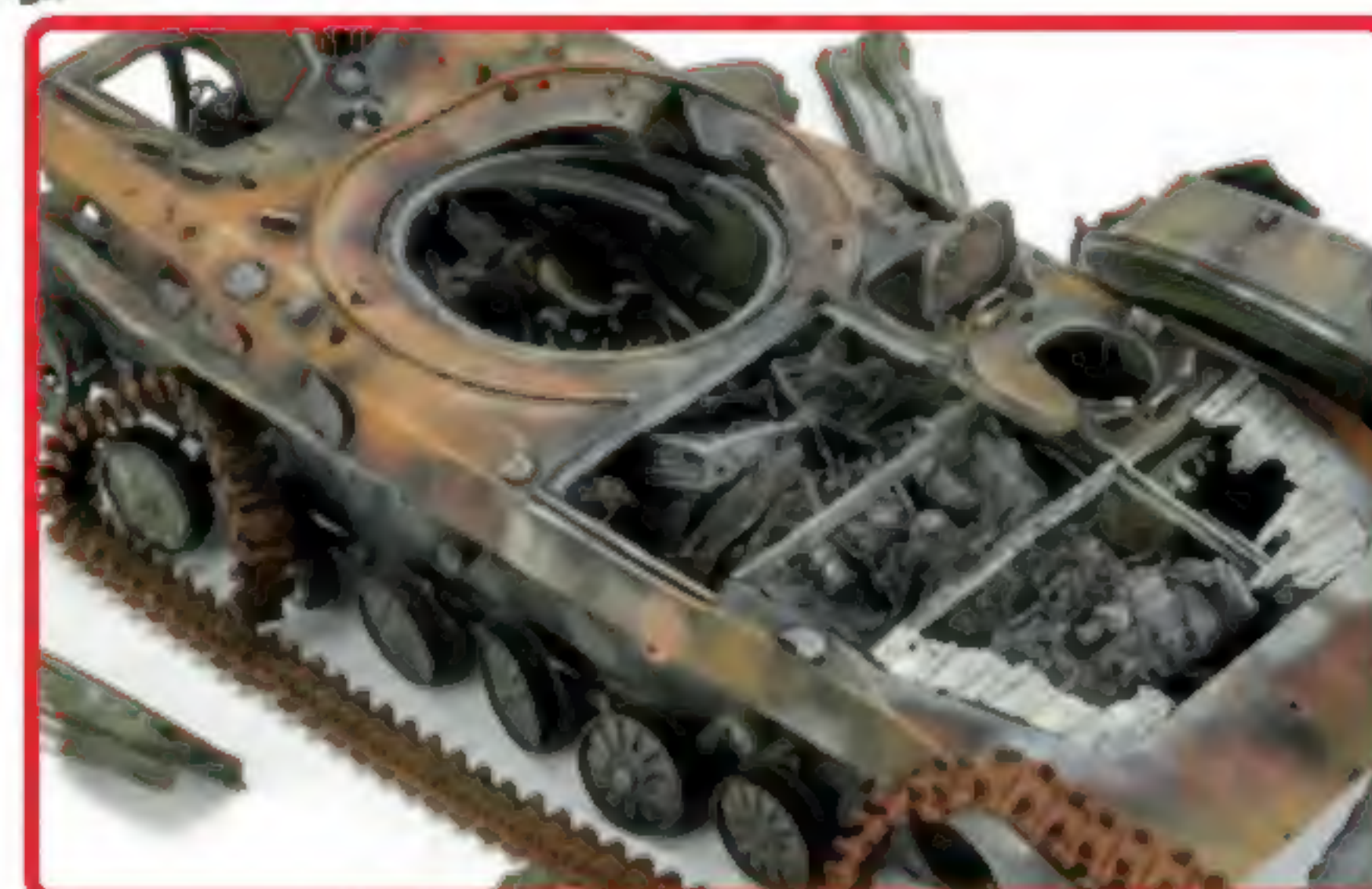
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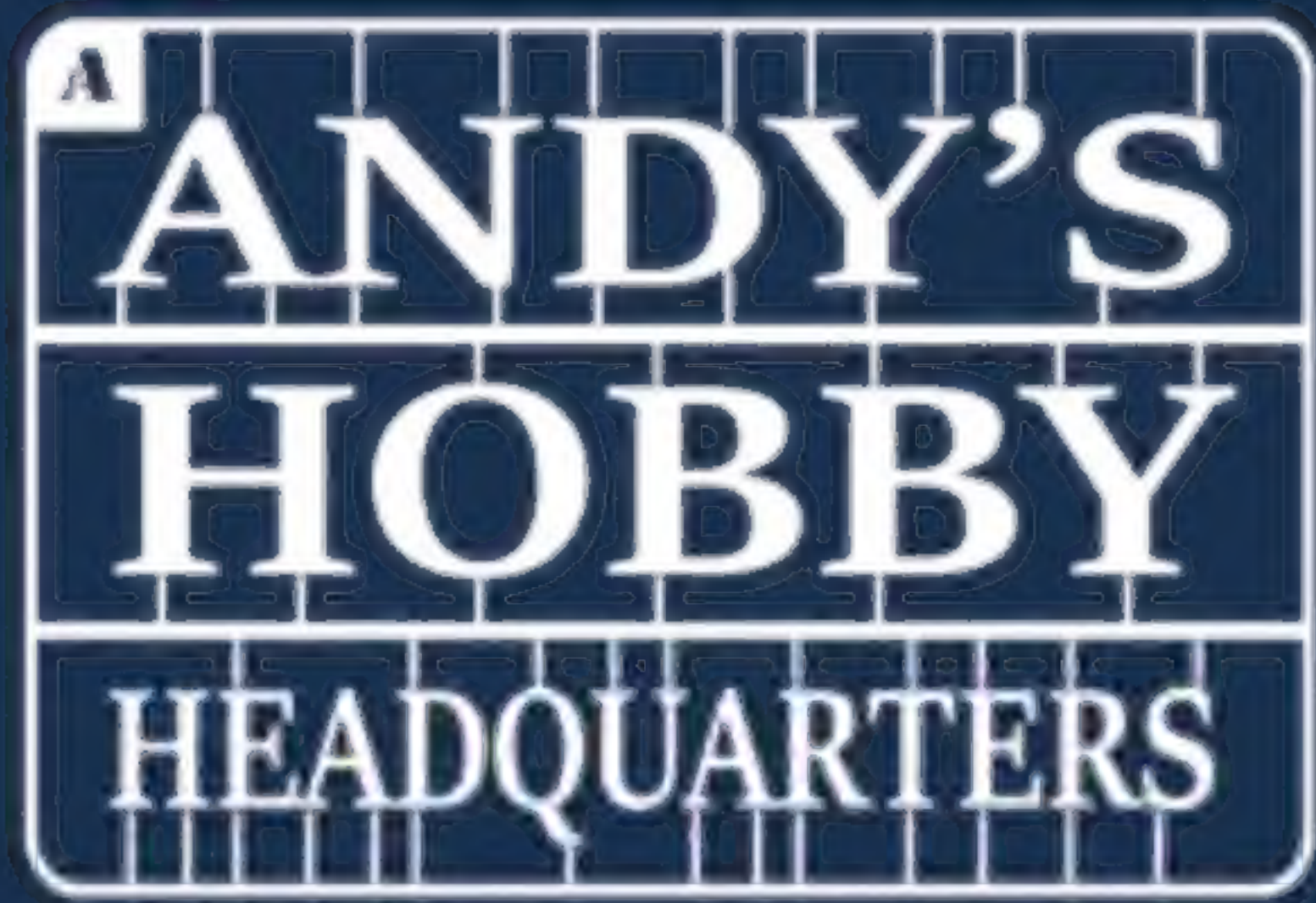


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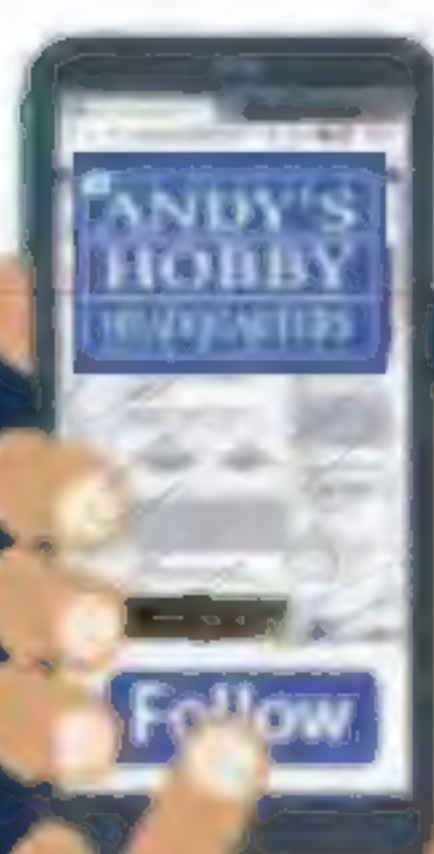


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COLD WAR

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AT THE BENCH

**Tom Cockle**



# FORUM

This month's editorial



**David Grummitt**

**Managing Editor**

Guideline Publications

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This month *Military Modelcraft International* publishes a collection of some of the best German armour-themed *Armour in Profile* articles that have appeared over the last fifteen years. There is no doubt, almost eighty years after the end of World War II, that the AFVs developed and employed by Nazi Germany from 1933 until 1945 continue to fascinate historians and modellers alike. This can be put down to several factors, I think. First, the Nazis were very good at propaganda and the myth of the power and invincibility of the Panzerwaffe was fostered from even before the outbreak of war in September 1939. Nazi propaganda

was amplified by Allied voices, which consistently exaggerated the strength of German tanks. When the Tiger I heavy tank was introduced to the frontlines in Russia and North Africa in 1942, both the British and the Soviets hailed it as a super weapon and made it the centrepiece of their own propaganda campaigns. Second, German armour in World War II was among the most colourful and diverse military equipment used in the twentieth century. The range of camouflage schemes available to modellers is almost infinite! The third factor is the huge amount of reference material that is available. Unlike their British, Soviet and, to some degree, American counterparts, German soldiers, especially in the early war years, went into battle equipped with cameras. New images surface constantly in auction houses and on eBay, finding their way into new publications that provide a non-stop source of inspiration for modellers.

Some of our contributors this month have been inspired by German World War

II subjects. Kristof Pulinckx returns and adorns our cover with his take on Tamiya's classic Jagdpanther, while Ivan Momcilovic builds Dragon's Pz.Beob. Wg. III. For small-scale modellers,

Stefan Szymanski continues our Czech

Panzer theme from last month with Hobby Boss's

Panzer 38(t). It's a pleasure to welcome Marcus Jacob to MMI as he presents a slightly different piece of German armour, a Bundeswehr M110 from the Cold War. Marcus's article on the recent AFV Club kit inspired me in this month's *Armour in Profile* as I look at the M107 and M110 self-propelled artillery systems. Modellers of Allied subjects are not forgotten this month as Rick Lawler builds Thunder Model's new F30 truck in LRDG service, while Rob Riviezzo runs us through his build of Resin Tech Models' MT-25. For devotees of more modern armour, Ilya Yut builds AFV Club's superb Centurion Shot Kal, while Imad Bouantoun provides a masterclass in modelling a burnt-out AFV with his build of Trumpeter's BMP-2. Finally this month, it is a pleasure to interview Canadian modeller and armour historian, Tom Cockle.

David Grummitt, Managing Editor

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# NEWS AT THE FRONT

An in-depth look at some of the latest releases in the hobby

Side by Side Comparison of the tracks on the Quarterscale scale Tamiya Stug III G and the small-scale MiniArt Stug III G

## MikeResin

SCALE: 1/48, 1/72

Rob Riviezzo

Not so long ago I asked a well-known 3D print company if they could produce workable tracks in 1/48 or 1/72 scale. The response was nothing short of a chuckle and an "absolutely not." The technology just isn't even close yet to make tracks that small and still workable, I was told. Soon after that conversation, companies started to produce 3D-printed 1/48-scale workable tracks, but 1/72 was still out of reach ... well not anymore. I recently stumbled across a post by fellow MMI contributor Alex Clark. He previewed 1/72-scale, 3D-printed tracks for an upcoming project by a new company out of Hungary, MikeResin. After reloading the page a few times to make sure my eyes weren't playing tricks on me, I found the contact information for this company. After an unexpected delay with the US postal service, I was finally able to get my hands on these amazing tracks and they are, well, amazing. It seems like each month we review a new company that offers some sort of 3D-printed upgrade, which is a great thing for the community, especially when the products keep getting better and better with each one.

For this review we will be looking at the following 1/72-scale products:

**Panzer III/Stug III Early Tracks for MiniArt/Revell/Dragon (ref. MKRSN0035)** which comes with Drive Sprockets, 220 track links and 0.2 mm wire; **Panzer III/IV Winterketten 3B and 6A tracks for MiniArt/**

**Panzer III-Stug III Early Tracks assembled and test fitted on drive sprocket.**



**Dragon (ref. MKRSN0038)** which comes with Panzer III and Panzer IV Sprockets, 224 track links and 0.2mm brass wire; **Panzer III/IV Osketten Tracks for MiniArt/Dragon (ref. MRRSN0039)** which comes with Panzer III and **Panzer IV Drive Sprockets, 224 track links and 0.2mm brass wire; Sd.Kfz 251/ Ausf. D Upgrade Set (ref. MKRSN0029)** which includes tracks, front wheels, drive sprockets and accessories for Dragon kits. There are also 1/48-scale sets, which include: Panzer III/IV Type 3A for Tamiya kits (ref. MKRSN0012), which includes 240 track links and 0.2mm brass wire; Panzer III/IV Winterketten Tracks for Tamiya kits (ref. MKRSN0013), which includes 240 track links and 0.2mm brass wire. The 1/48 tracks were designed by Bence Szabó and licensed for use, while the 1/72 tracks and detail set were designed by MikeResin's Miklós Sikora.

Each set of tracks is packaged in a solid cardboard box with the tracks

placed inside specific labelled zip-loc bags and attached to their build plates. This is a good thing as it gives the tracks added protection during shipping. Both the scale tracks are printed with the outer track pin head on the tracks. The overall detail of the tracks is excellent with accurate casting marks on the outer face of the tracks. Each set of tracks comes with an instruction sheet on the assembly process and is easy to read and follow. A wound-up length of 0.2mm brass wire is supplied in each set. The tracks are easily removed from the build plates, but care must be taken when doing this, especially with the early Panzer III/IV/StuG III tracks. These 1/72-scale tracks are the early style with open guide horns. The guide horns are very fragile and can be damaged if not removed properly. Thankfully, there are more than enough tracks packaged, to make up for any damaged or broken track links. The drive sprockets supplied



Panzer III-Stug III Early Tracks assembled and fitted.





Quarterscale Panzer III-IV Type 3A Tracks assembled and fitted to Tamiya Stug III Ausf. G

in the 1/72-scale track sets are also still attached to their build plate and need some care when removed and cleaned.

Assembly of the tracks are the same and are done by inserting the supplied 0.2mm brass wire into the inside part of the tracks. I found it easier it cut the brass wire to size prior to assembly. This allowed me to make the tracks quickly and easily. The wire only needed a small drop of CA glue in the end to ensure it does not fall out. I was surprised at how easy these tracks assembled, and one full set of tracks went together in under an hour. Both sets of 1/48-scale tracks fit the Tamiya sprocket well with only slight adjustments needed to the guide teeth. The 1/72-scale tracks fit the supplied Panzer III and IV sprockets perfectly. These sets are specifically designed for the MiniArt and Dragon kits, but since you will be using the supplied drive sprockets, fit will not be an issue. The number of tracks needed per side varied slightly between sets to achieve a realistic sag, which is something I try to do with all my builds, especially on German armour subjects. I did not have a Dragon 1/72-scale Sd.Kfz.

251 available to try out that set. It includes complete 3D-printed tracks, front wheels, drive sprockets, Bosch lights and tools specifically designed for the Dragon kits. The detail on the parts is excellent with no layer lines and small connection points.

Hopefully I can get my hands on a



Quarterscale Panzer III-IV Winterketten Tracks assembled and test fitted on Tamiya drive sprocket.

small-scale SPW to give a full review soon.

I've spent a lot of time over the past few months testing out and reviewing various 3D-printed tracks and accessories from a variety of new and upcoming 3D companies. MikeResin came out of nowhere for me and I am thankful to have been able to get my hands on these tracks and upgrades. The fact that they can offer the modeller fully workable 1/72-scale tracks is a marvel in 3D printing. These tracks, in both scales, are easy to assemble, have almost no noticeable layer lines, and look amazing on the finished build. If you plan on building in these scales, do not hesitate to try these products out, you will not be disappointed. Thanks to Miklós Sikora

from MikeResin for sending me out the review samples. You can purchase these tracks and upgrades, along with other track sets for the 1/48-scale Tiger 1, KV-1/2, T-55 and others, directly from their website at [www.MikeResin.com](http://www.MikeResin.com), or send him a message on Facebook at MikeResin.



Sd.Kfz 251 Ausf. D upgrade set

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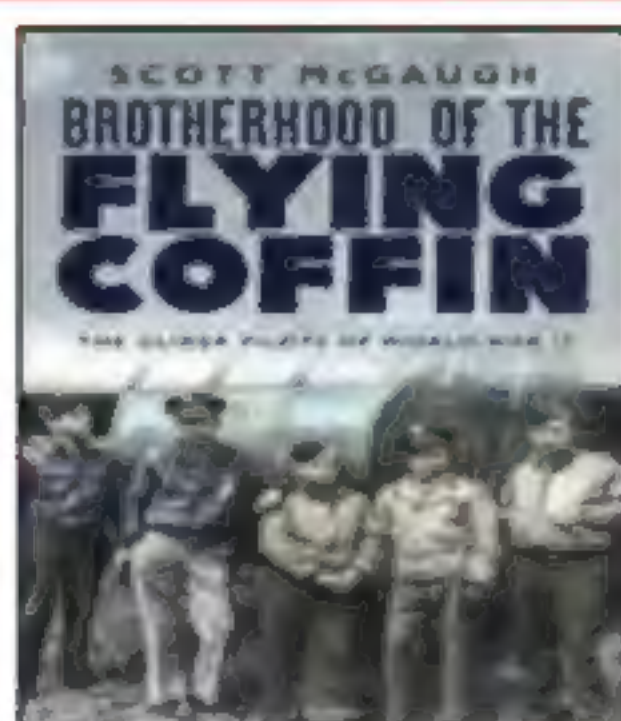


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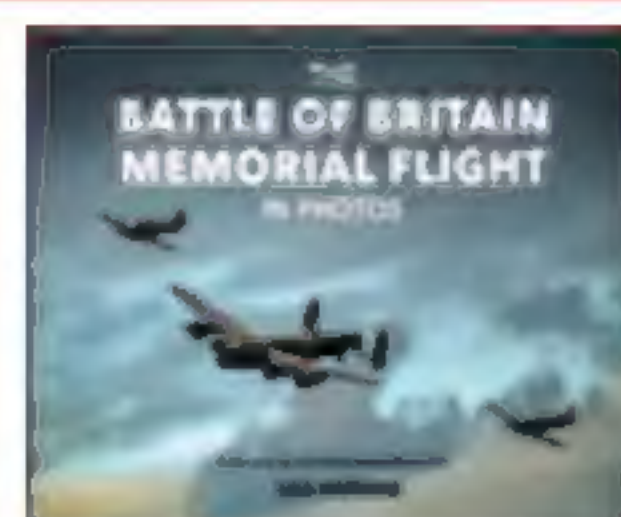
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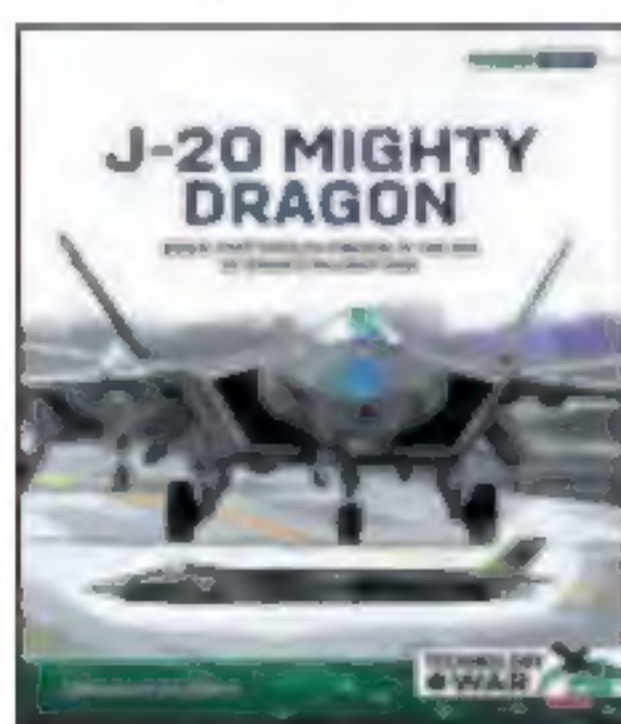
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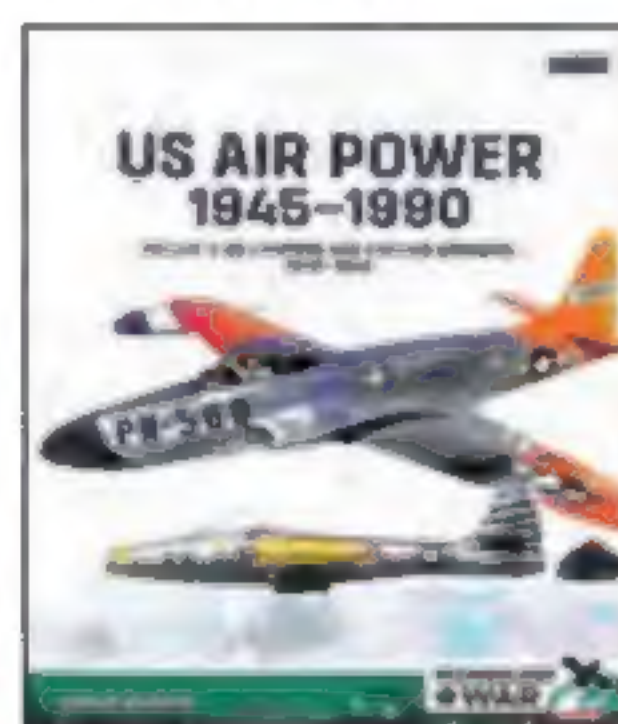
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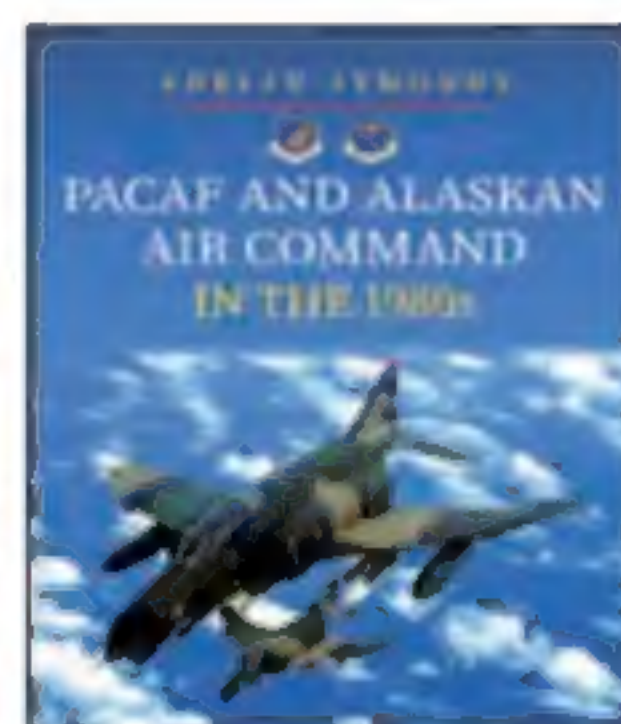
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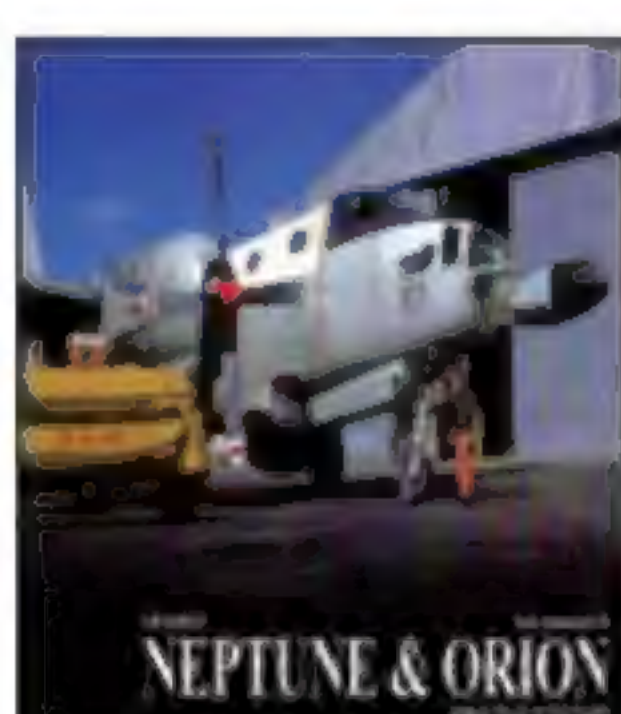
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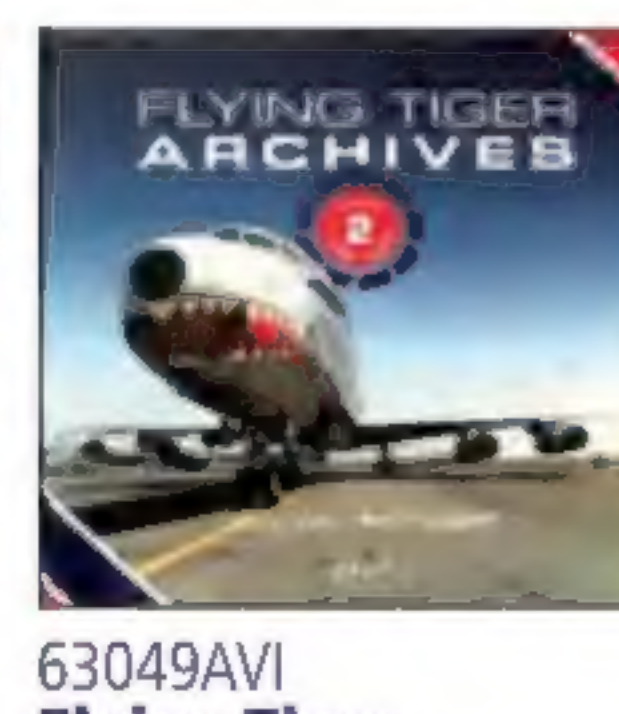
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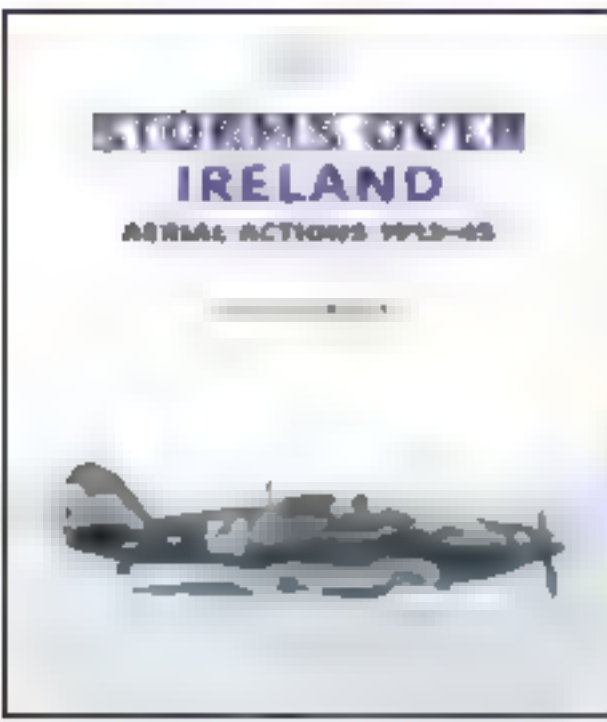


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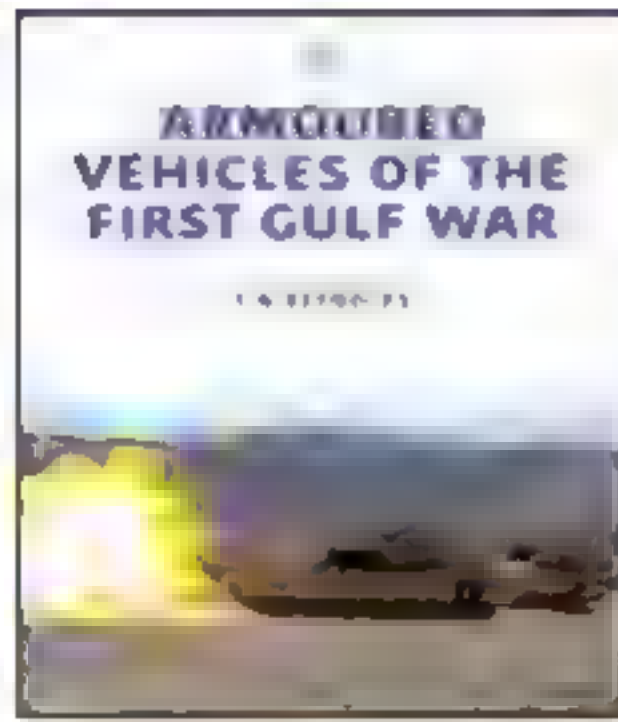
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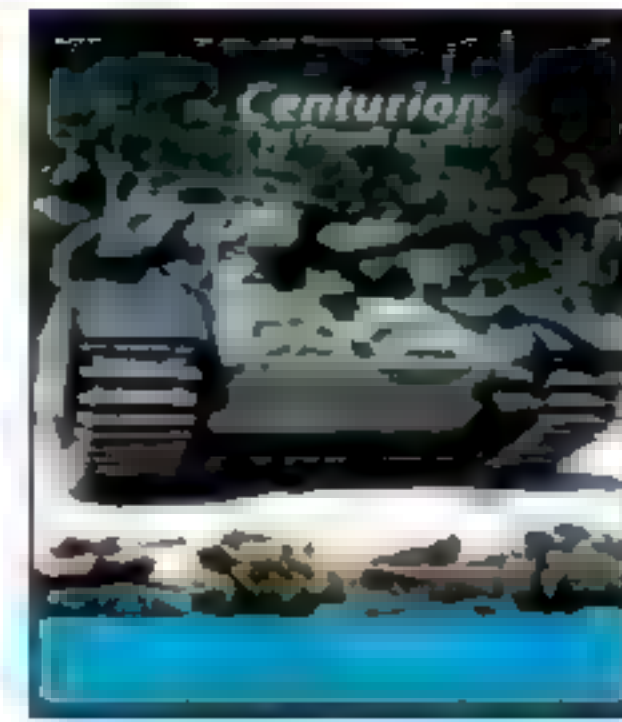
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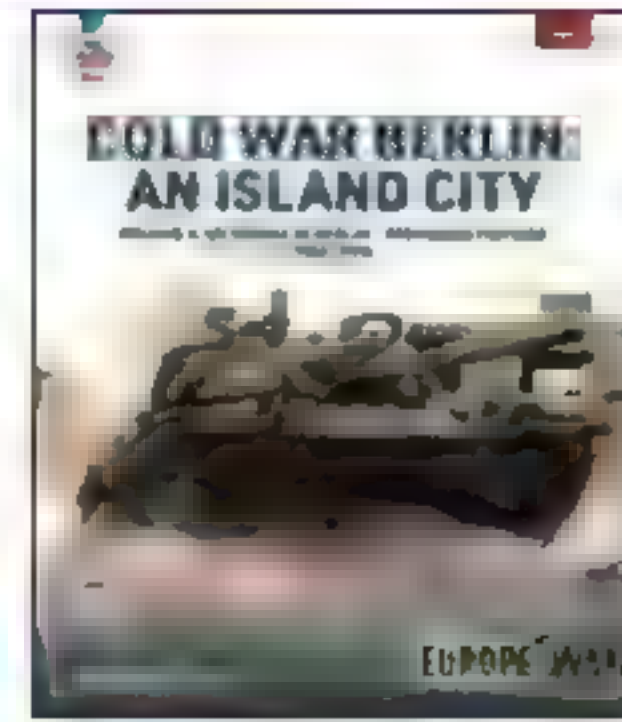
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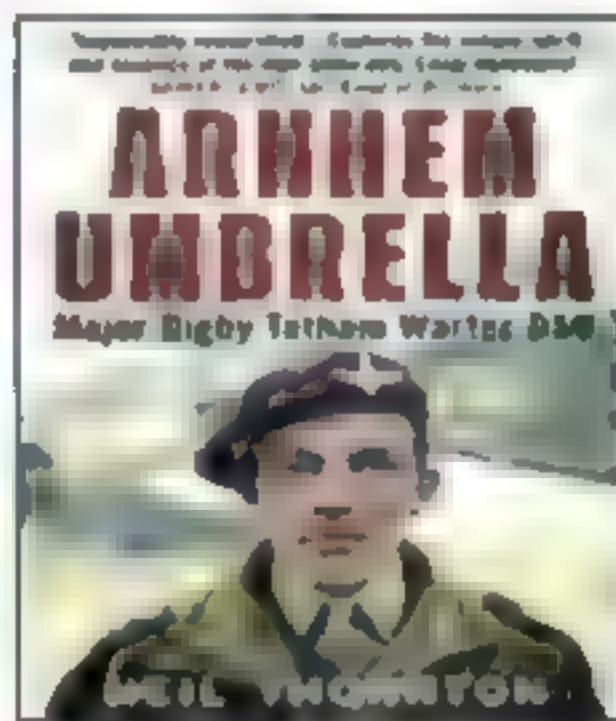
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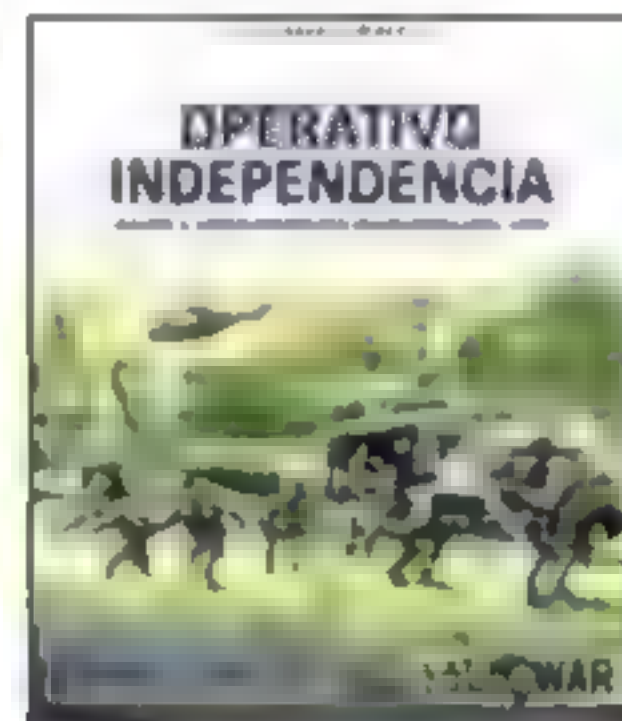
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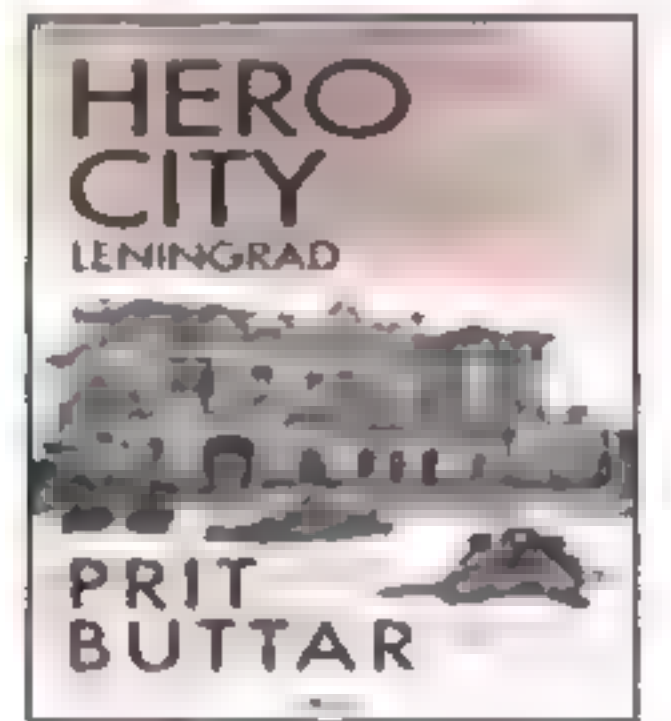
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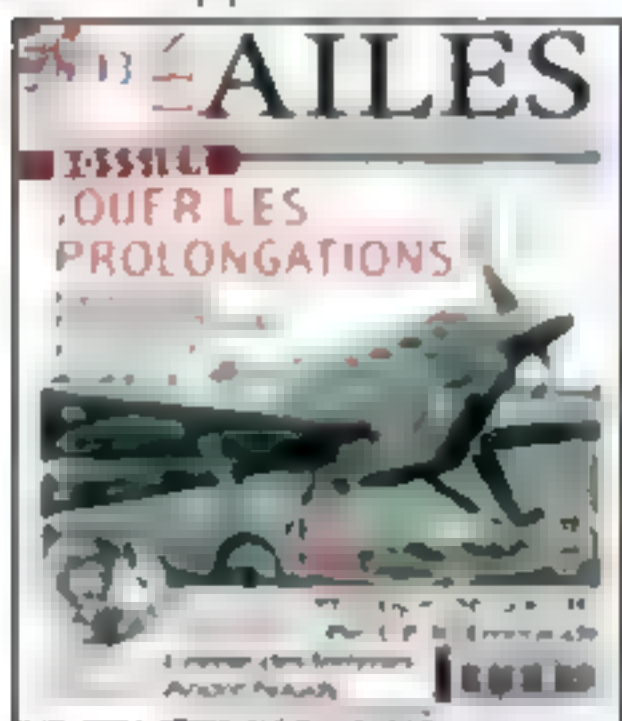
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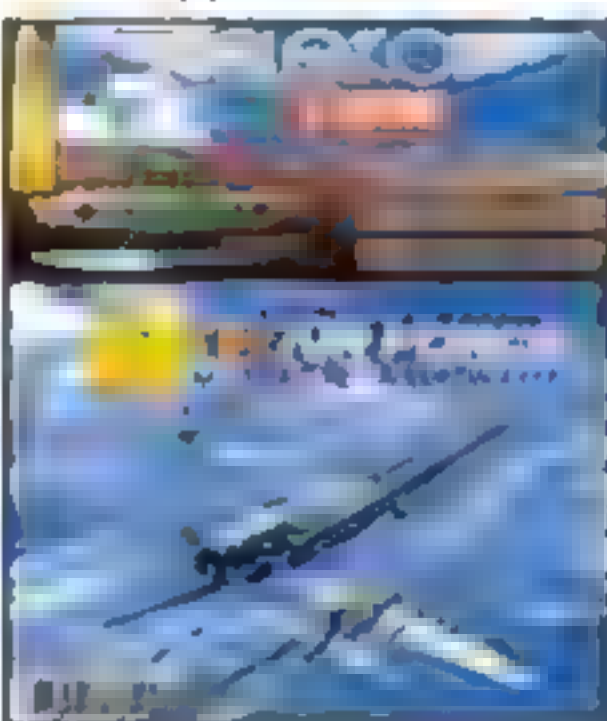
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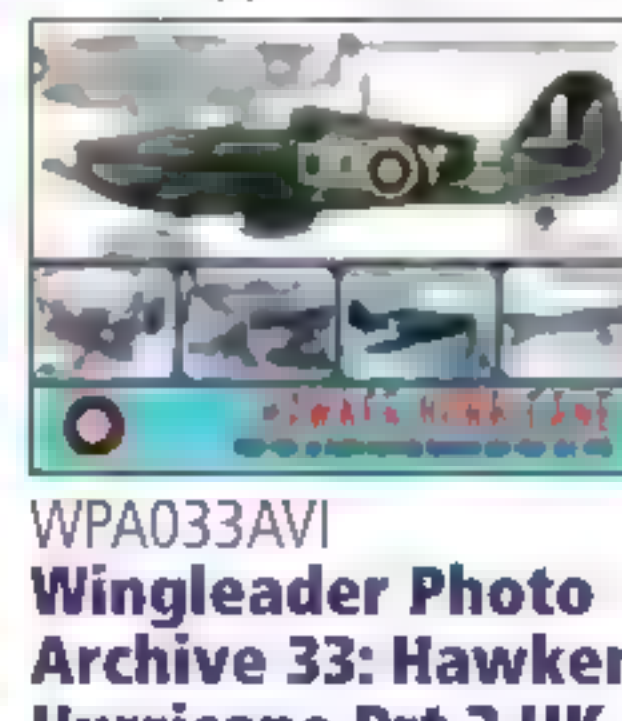
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## Das Werk

SCALE: 1/35

David Grummitt

An intriguing release from the guys at Das Werk this month and one that will delight those of us who fascinated by the AFVs of the late Cold War. The **Raketenjagdpanzer Jaguar I '2 in 1' (ref. DW35035)** had been developed in cooperation with Amusing Hobby. The Raketenjagdpanzer was a West German tank destroyer employed from 1967 to 1982 and equipped with Nord SS.11 anti-tank guided missiles (ATGM). It was developed at the same time as the Kanonenjagdpanzer and the Marder IFV and shared a similar chassis with them. From 1978 to 1982, 316 Raketenjagdpanzer 2 units were converted into Jaguar 1s by replacing the SS.11 missile system with a HOT launcher and upgrading the armour. From 1993 to 1995, new optics and a thermal imaging system were added to create the Jaguar 1A3. In many ways, the Raketenjagdpanzer exemplified NATO's military thinking on the Central Front in the 1960s and 70s: heavily outnumbered, the Bundeswehr's AFVs would fight a delaying action against the Soviet tank hordes. The ATGM offered the opportunity to do this 'on



the cheap' and the success of that weapons system in the 1967 and 1973 Arab-Israeli wars greatly influenced NATO planners.

The Das Werk kit is a logical follow-on from their excellent Kanonenjagdpanzer/Beobachtungspanzer (ref. DW35031) released last year and it shares many of the same parts. It is not the only Jaguar I on the market, as Revell released their own kit of the vehicle back in 2009 (ref. 03088). This has just been released again, and it is not a bad kit by any measure. However, judging from other Das Werk/Amusing Hobby collaborations, this new kit will be sharper and result in a better model. The kit is straightforward with three plastic sprues, a lower hull tub, a clear sprue, a set of masks for the optics, and a metal tow cable. Markings are provided for three Bundeswehr vehicles and one Austrian Jaguar I, which cover its service from the 1980s to the mid-2000s. The kit will be available from all good model shops and you can check out the entire Das Werk range at [www.das-werk-models.com](http://www.das-werk-models.com).



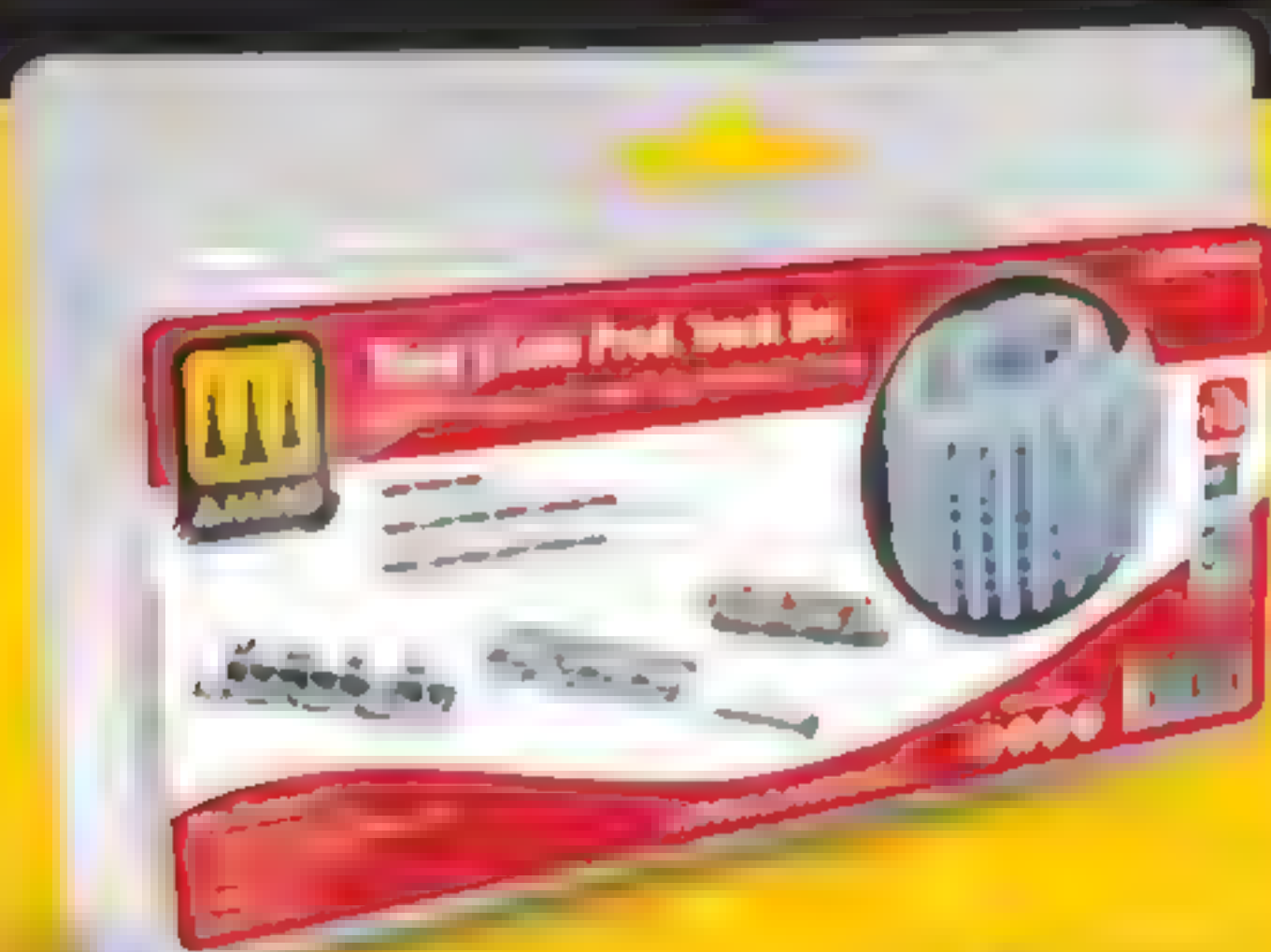




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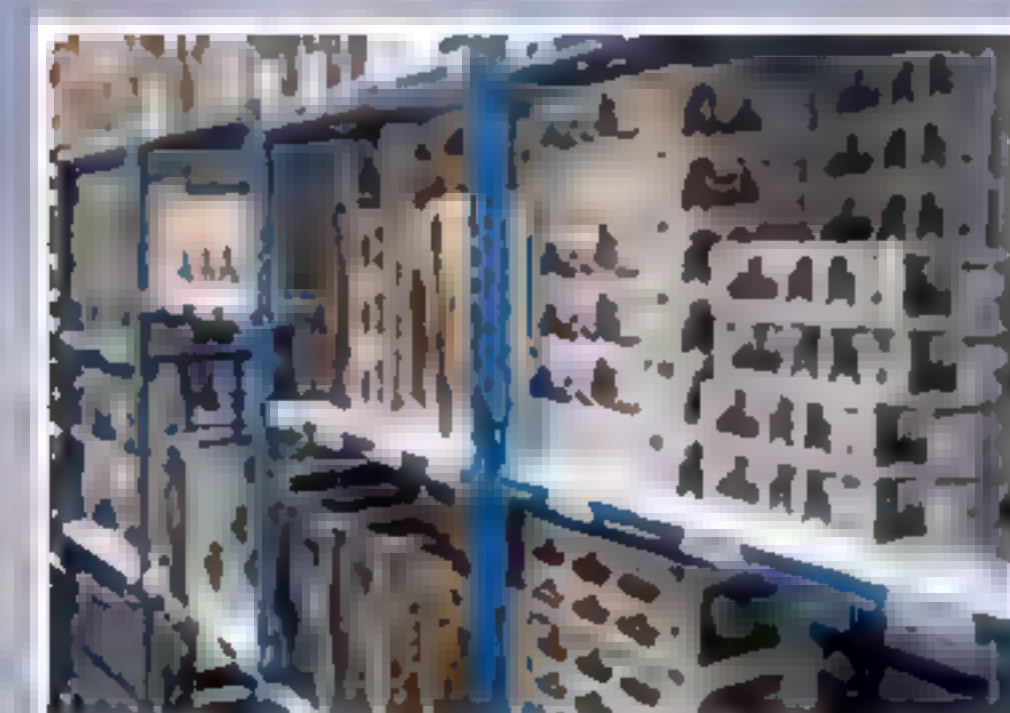
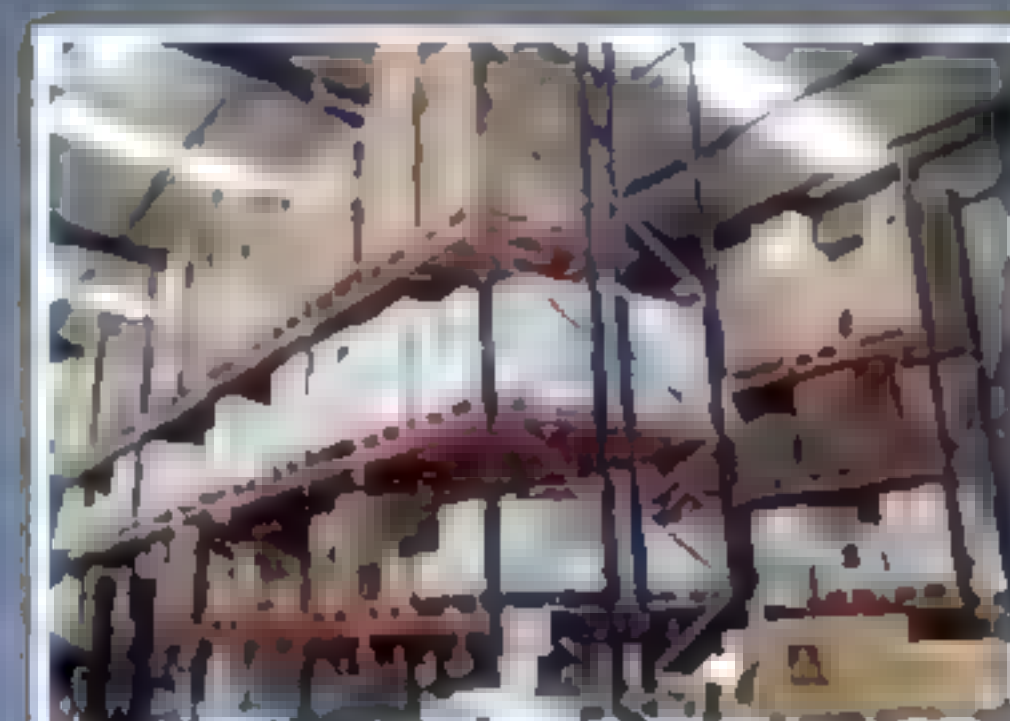
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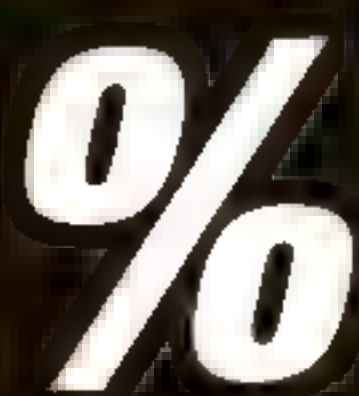
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versatile of MiniArt's Opel Blitz kits released so far, featuring a typical mid-production truck that saw action on all fronts during World War II. Six marking options are included for vehicles from the Eastern, Western and North African fronts and finished in Dunkelgrau as well as camouflage colours. **StuG III Ausf. G Feb 1943 Prod. With Winter Tracks (ref. 72013).**

This is the sixth release in the small-scale StuG III range and is especially significant for the inclusion of a set of Winterketten tracks. Markings are provided for four white-washed StuGs on the Eastern Front. Keeping with the winter theme, we have five very

## MiniArt

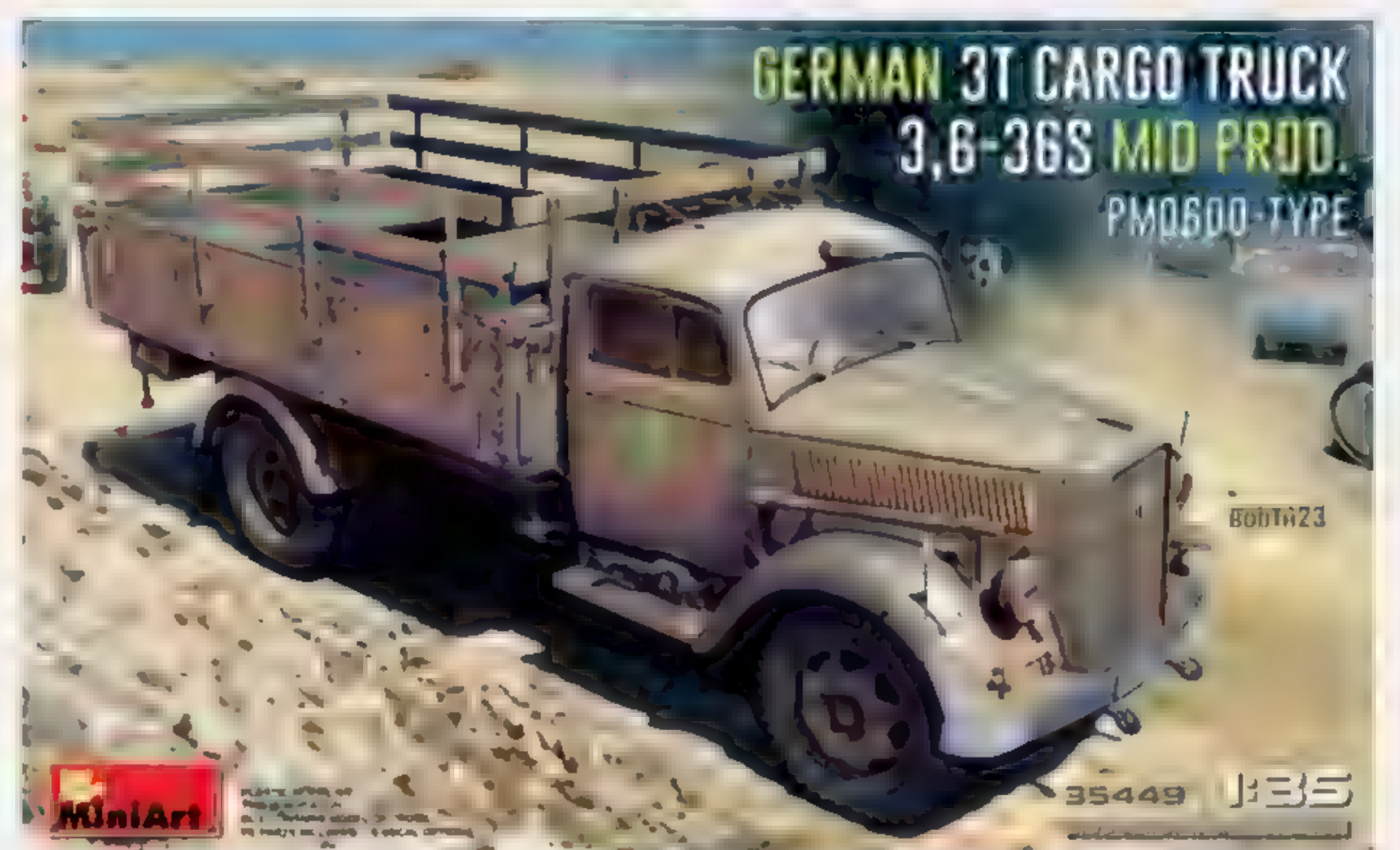
SCALE: 1/35 and 1/72

David Grummitt

MiniArt continue their frenetic rate of monthly releases with a nice range of vehicle and figure kits aimed at modellers of World War II German subjects. The most anticipated release is doubtless the **Sd.Kfz. 234/3 Schwerer Panzerspähwagen 'Stummel' (ref. 53001)**. Armed with the short-barrelled 7.5cm gun previously fitted on the StuG III and Sd.Kfz. 251, this version of the late-war 'Acht-Rad' is often overlooked by modellers in favour of the three other versions. The vehicle was, of course, kitted by Italeri many years ago and more recently by Dragon, but the MiniArt kit offers some state-of-art moulding. The open-topped nature of the vehicle demands a detailed fighting and driving compartment, although no engine is included in this kit. Next, we have **German 3T Cargo Truck 3,6-36S Mid. Prod. PMQ600-Type (ref. 35449)**. This is probably the most



cold-looking **German Soldiers Winter 1941-42. Special Edition (ref. 35428)**. These figures really capture the desperate state of the Wehrmacht during that first winter in Russia. The inclusion of a sprue of German weapons and equipment will certainly add to the diorama and vignette possibilities. A final, and interesting, German release is **Flugabwehr-MG 151/20 (ref. 35438)**. This anti-aircraft gun, first fitted to Luftwaffe combat aircraft and later used in the ground role, was used in static positions but also fitted to the Sd.Kfz. 251/21 SPW. The kit includes both the gun and two ammunition boxes. Our thanks to MiniArt for the product information. Their kits are available from all good model shops ([www.miniart-models.com](http://www.miniart-models.com)).





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also included in tank and motorized divisions. Production of these guns continued until the end of World War II.

Next, we have an interesting new release adding to ICM's range of G7117 US Army trucks. **WWII US Army Kitchen Truck (ref. 35587)** has enormous diorama potential. To provide food for the American army, so-called 'Kitchen Trucks' were introduced. They were used to transport kitchen equipment and supplies and for the preparation of hot meals during unit marches. These trucks had extended arches for canvas covers on the body, so that cooks could stand upright while working. Wooden

bench seats for personnel, which were located inside the body of army trucks, could be placed on the outside of the 'Kitchen Trucks' for placing pots, pans, and other kitchen equipment. The equipment of such kitchens varied, but one of the essential components was the M-1937 field stove, which operated on liquid fuel. Each M-1937 stove came with a set of pots, pans, and other kitchen utensils. The stoves were placed either along the side walls of the bodies or near the cab. Various types of trucks were used as platforms for mobile kitchens, including the Chevrolet G506 modifications G7107 or G7117. Our thanks to ICM for the product information. The kits will be available in good model shops by the time you read this ([www.icm.com.ua](http://www.icm.com.ua)).

**ICM**  
SCALE 1/35

David Grummitt

There is the usual range of new releases this month from Ukrainian manufacturer ICM. Two in particular will be of interest to readers of this magazine. **2cm Flak38, WWII German AA Gun (ref. 35717)** is a completely new tooling of this widely used AA gun. In 1934, the 20mm anti-aircraft gun Flak 30, developed by the German company Rheinmetall, was adopted by the Luftwaffe. Based on the combat experience in Spain, Mauser upgraded the gun, and the new model became the 2cm Flak 38. The upgraded gun used the same ammunition as the Flak 30, with changes primarily aimed at increasing the rate of fire from 245 to 480 rounds per minute. The new gun began entering service in the second half of 1940 and soon became the principal close-range air defence tool in the Wehrmacht and Luftwaffe. Besides combating aircraft, the gun could also be used to engage lightly armoured targets. A company equipped with twelve 2cm Flak 38 guns was part of the anti-tank battalion of infantry divisions, and similar companies were





# FC Modeltrend

SCALE: 1/35

David Grummitt

We are covering an increasing number of 3D-printed kit and accessory manufacturers in these pages, but Spanish maker FC Modeltrend was one of the first and they continue to release new products at a dizzying rate. They make the most of the ability of 3D printing to offer the same product in lots of different scales, and they have used this to offer complete kits of unusual vehicles in all the major scales. The Standard Car 4x2, or Car Armoured Light Standard, better known as the Beaverette, was an improvised armoured car produced in Britain during World War II. Some 2,800 were made and it was usually employed by units based within the UK. FC Modeltrend's Standard Beaverette (sic) Mk. I/II (ref. 37010) is one of the more ambitious of their complete vehicle kits. The one-piece body is nicely done with some commendably in-scale armour plates, while two other print supports



contain the seats, wheels and other interior details, and the suspension frame (which is thankfully straight). The barrel of the Bren Gun armament was broken on our review sample, but most modellers should be able to replace this. Some instructions might be helpful as these kits increase in their complexity, but this is a nice kit and a welcome opportunity to add an unusual British wartime AFV to the collection. Our thanks to FC Modeltrend for the review sample ([www.fcmodeltrend.com](http://www.fcmodeltrend.com)).

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## Jason Studio

SCALE: 1/16

David Grummitt

A couple of months ago, we interviewed Andy Klein from Andy's Hobby Headquarters and one of the most exciting aspects of that was learning more about the imminent release of a

1/16-scale M113. We'll be covering that in detail once we have the kit in our hands, but I was interested to learn that Jason's Studio have a range of figures and accessories that will make what promises to be a great kit into something out of this world. First, we have a **M113 Armored Personnel Carrier Accessory Set** which looks to include some ammunition boxes and other



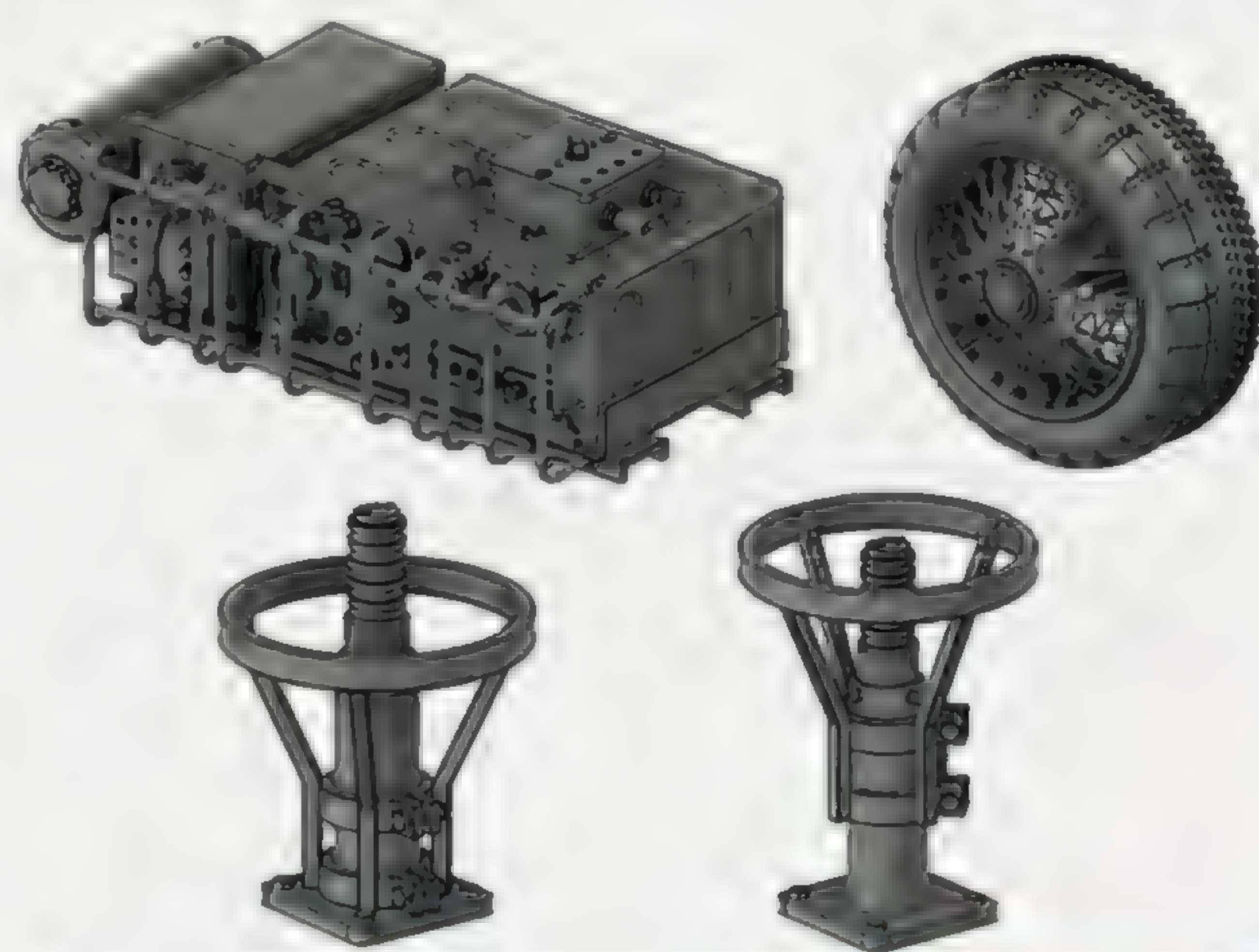
resin details. More exciting still is a set of **M113 Armored Personnel Carrier Crew & Infantrymen (ref. JS-16019)**. This includes a driver, commander and two 'Grunts' armed with M16 rifles. These figures are also available separately. Check out their website for other figures to complement the AHHQ 1/16-scale kits. You can see the range on their Facebook site or at [www.jason-studio.com](http://www.jason-studio.com).

## Plus Model

SCALE: 1/35

David Grummitt

Czech company Plus Model are best known for their resin accessories and kits and range of printed and other media diorama accessories. Recently, however, they have joined the 3D printing party and now offer a nice range of very highly detailed, exquisite 3D-printed accessories. **British Wireless Set. No. 19 Mk II (ref. DP3048)** are very nicely done and relevant to a wide variety of vehicle kits. **Wheels for British Armored Car RR (ref. DP3054)** are a straight replacement for the Roden or Meng kit and have exquisite spokes. **British Antennas with Bases E (ref. DP3053)** are of a similar quality and a big improvement over either plastic or photoetched options. A more traditional resin kit, albeit using 3D printing for the more fragile parts and also of high quality, is **US Trailer M18 Tandem Axle (ref. 597)**. This was a two-ton, four-wheeled American cargo trailer used for transporting all kinds of cargo, but mainly as a carrier for an electric generator for a searchlight or for a command post. The M18 type has the addition of a hand winch, folding ramps and ramps, which were intended to prevent the trailer from sinking into the mud during long periods of standing. All of these are highly recommended for modellers looking for the quality we have come to expect from Plus Model over recent years. There are available from [www.pluzmodel.cz](http://www.pluzmodel.cz).







## 3D Gizmo

SCALE: 1/35

Steve Santucci

Little Willie is the granddaddy of all tanks and only fitting to see this new kit available from The Tank Museum in Bovington. The Medium Mark A Whippet was a medium tank employed by the British in World War I. Intended for fast mobile assaults, it was intended to complement the slower British heavy tanks by using its relative mobility and speed in exploiting any break in the enemy lines. Although its design appeared more 'modern' than the British rhomboid tanks, the Whippet was the direct successor of Little Willie, the first tank prototype (itself directly taken from the track design of the Holt tractor). The crew compartment was a fixed, polygonal turret at the rear of the vehicle, and two engines of the type used in contemporary double-decker buses were in a forward compartment, driving one track each. It first saw action in March 2018, and some 200 were built.

This kit is an exclusive release and can only be purchased through the Tank Museum. 3D Gizmo printed and boxed the kit, which is limited to run of just 300. Each kit contains an instruction sheet and a card noting which number the kit is. It comes well packed in a nice, stout white cardboard box. The delicate parts are in resealable bags. The upper, lower and rear parts of the hull, the tracks assembly for



each side are wrapped in some form of perforated brown paper.

The main parts of the kit are printed in a hard, thick, almost old school toy plastic. The print lines are very fine but are noticeable on all surfaces. I have dry fitted the hull parts and noticed a little fit issue with the rear part which will need a little sanding and filling but should work out fine. There are a total of eight parts, so this shouldn't tax your modelling skills. The two head lamps are delicate and can easily be broken. One came detached from the supports and broke in transit, but it's nothing a little superglue cannot fix. The bulk of the work will be the painting and weathering of this historic piece of equipment. For those that do not have the opportunity to visit the Museum like myself, the kit can be purchased online from The Tank Museum shop for £89.99 GBP at [www.tankmuseum.org](http://www.tankmuseum.org).



NEWS AT THE FRONT



**LEVEL 3**



03791 BAE 146-200 "AirUK", 1:144

**LEVEL 4**



03805 Westland Lynx Mk.88, 1:72

**LEVEL 4**



07729, '70 Shelby® GT500™, 1:25  
Inc. parts for boxtop "Street" or modified "Custom" version.

**LEVEL 4**



05242, KFK (Kriegsfischkutter), 1:144

**LEVEL 5**



05180, German Sub Type IX C (U-505 Late), 1:72  
Includes decals for Kriegsmarine & captured (US Navy) versions

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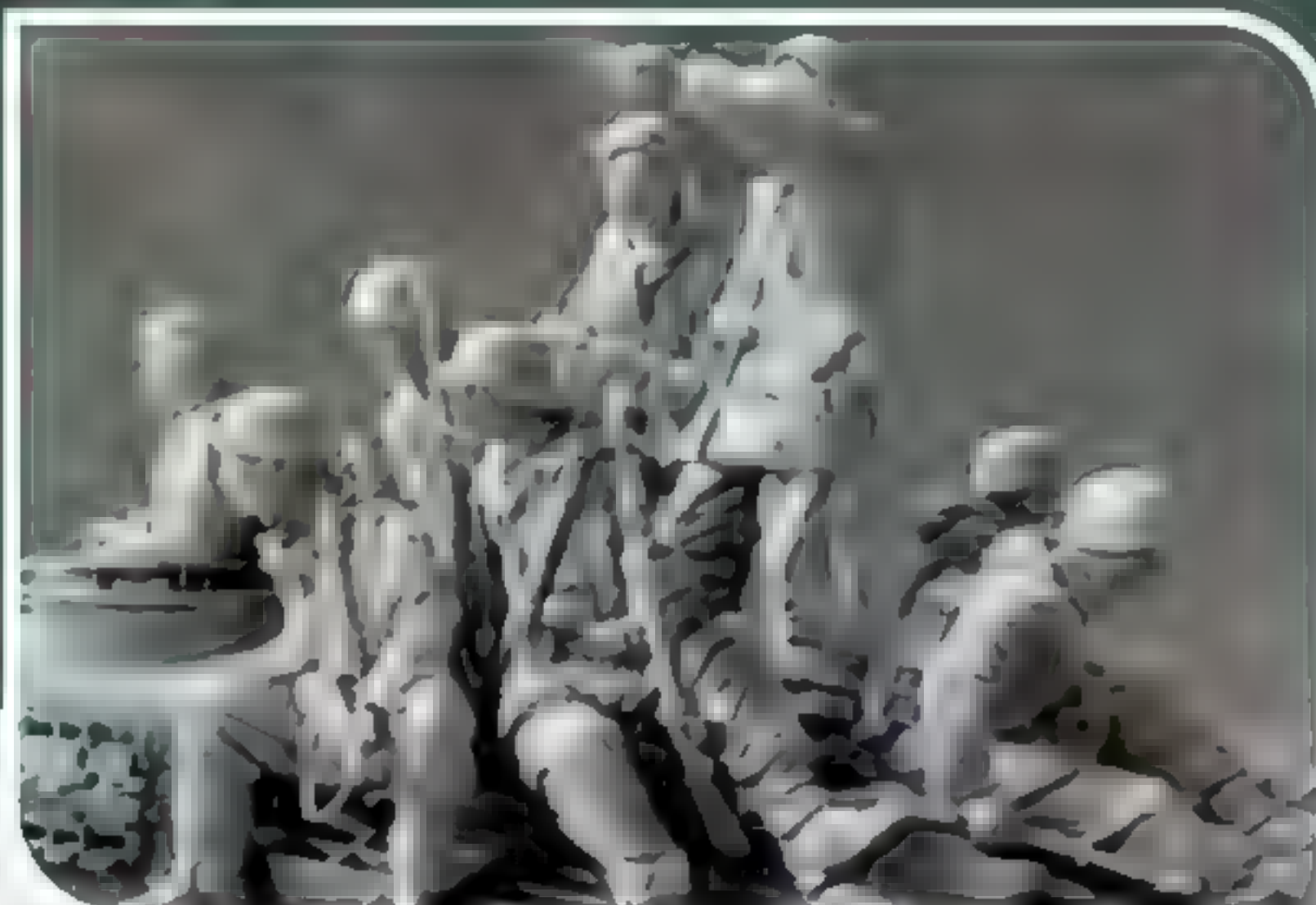
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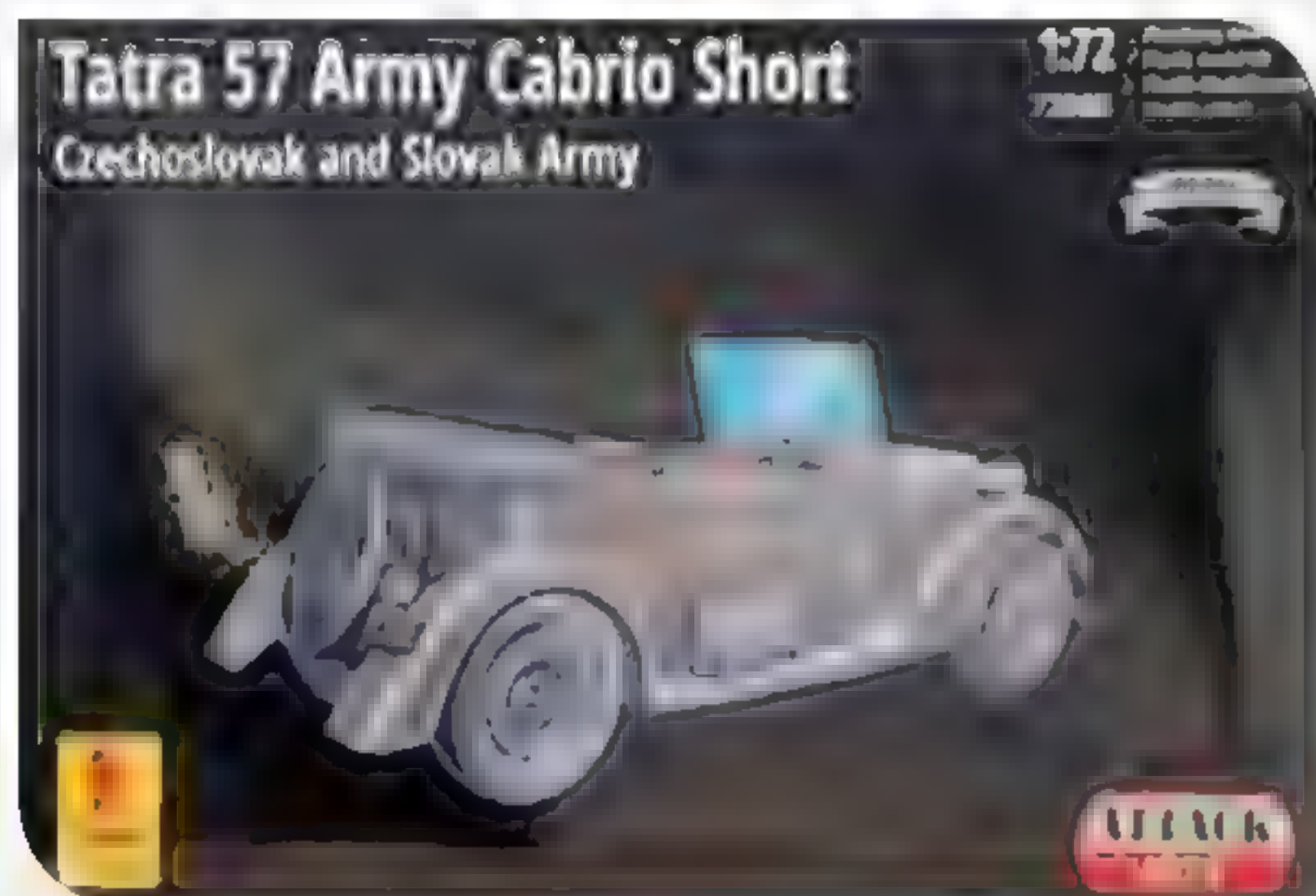
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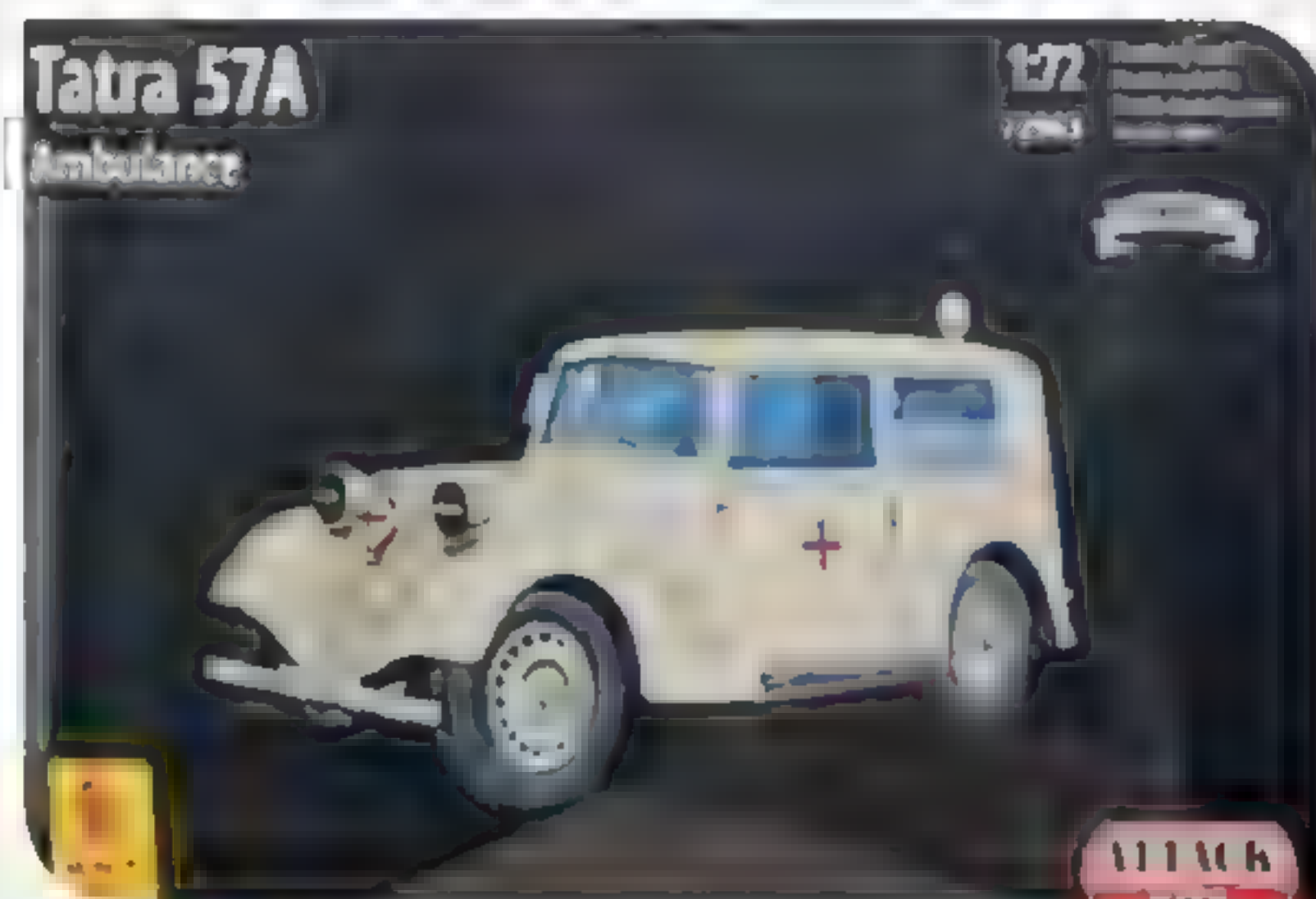
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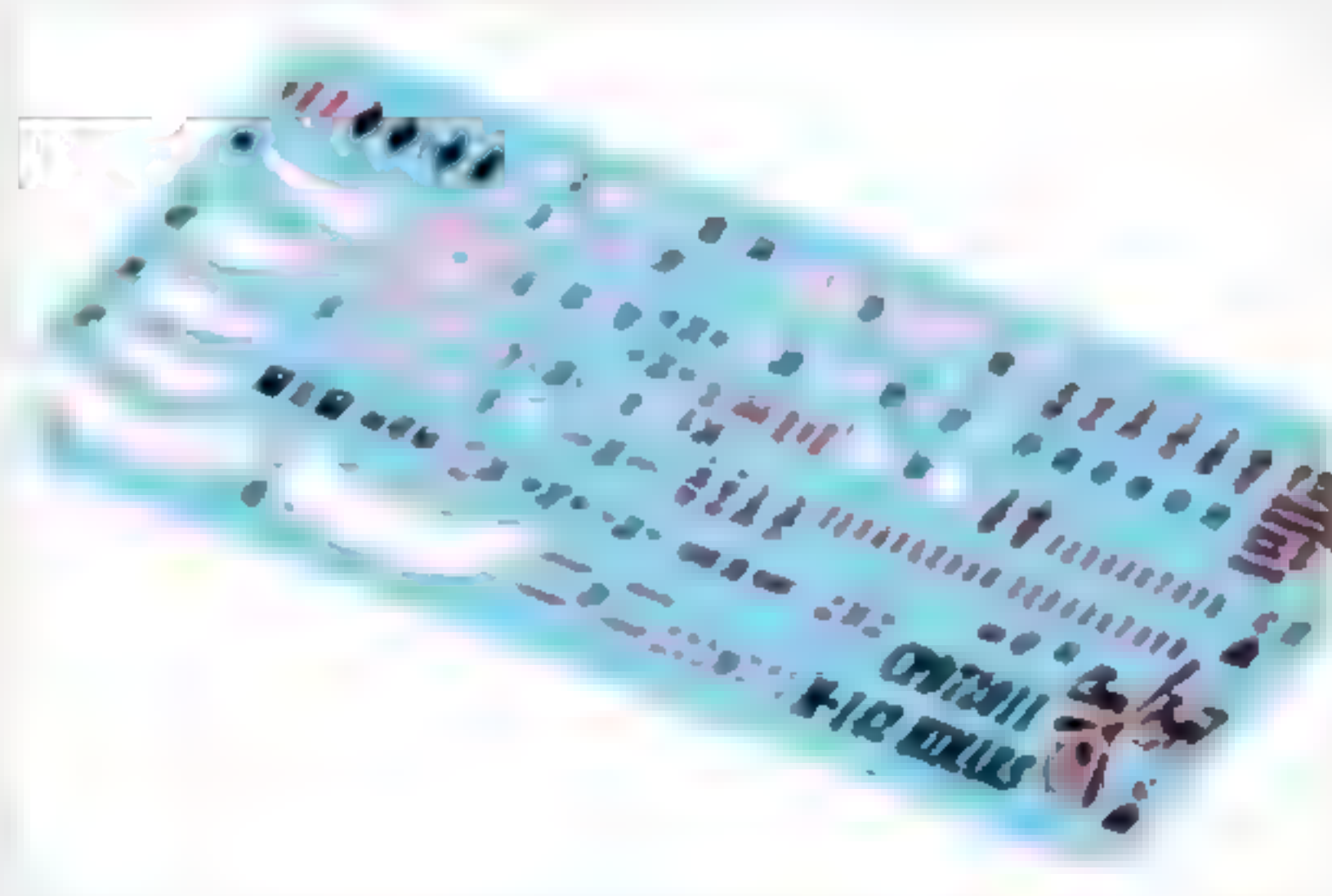
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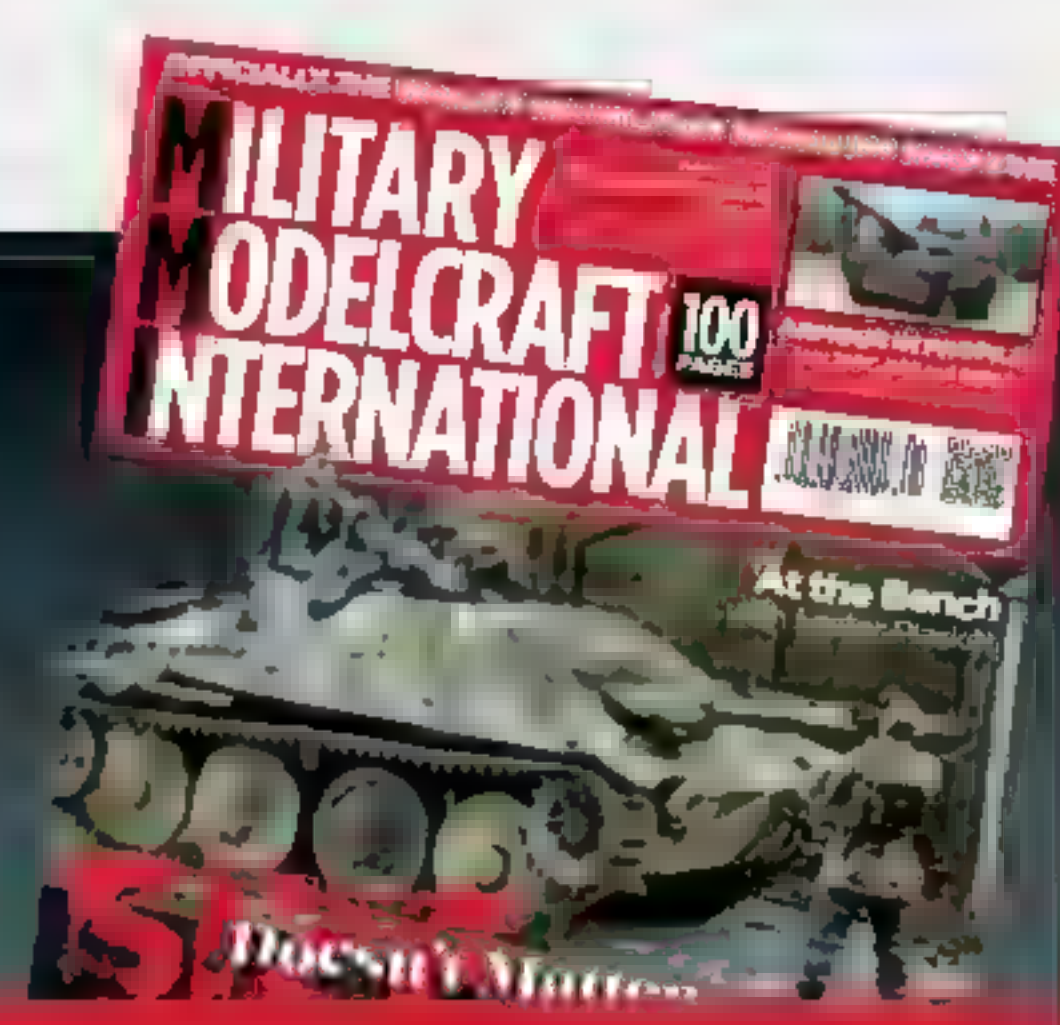


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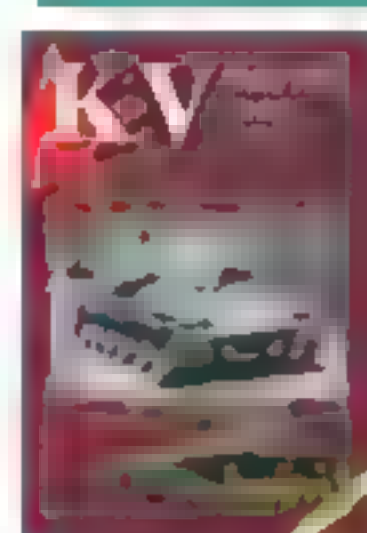






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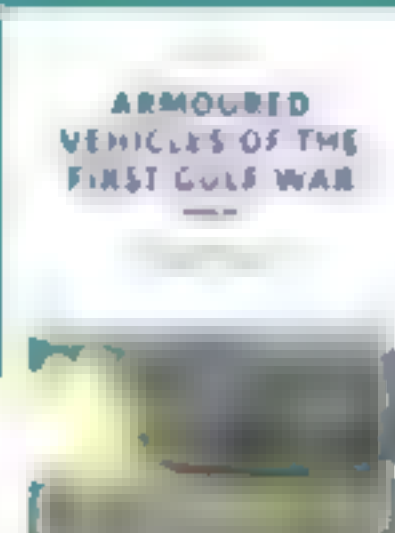
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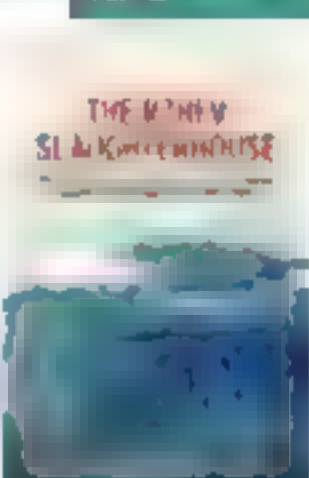
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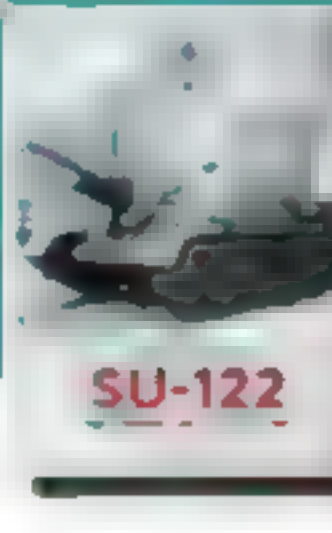
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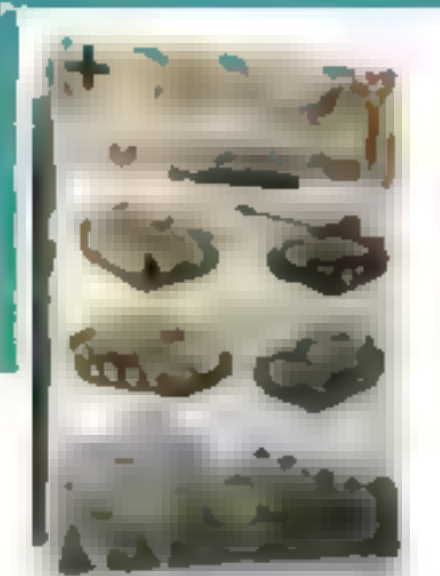
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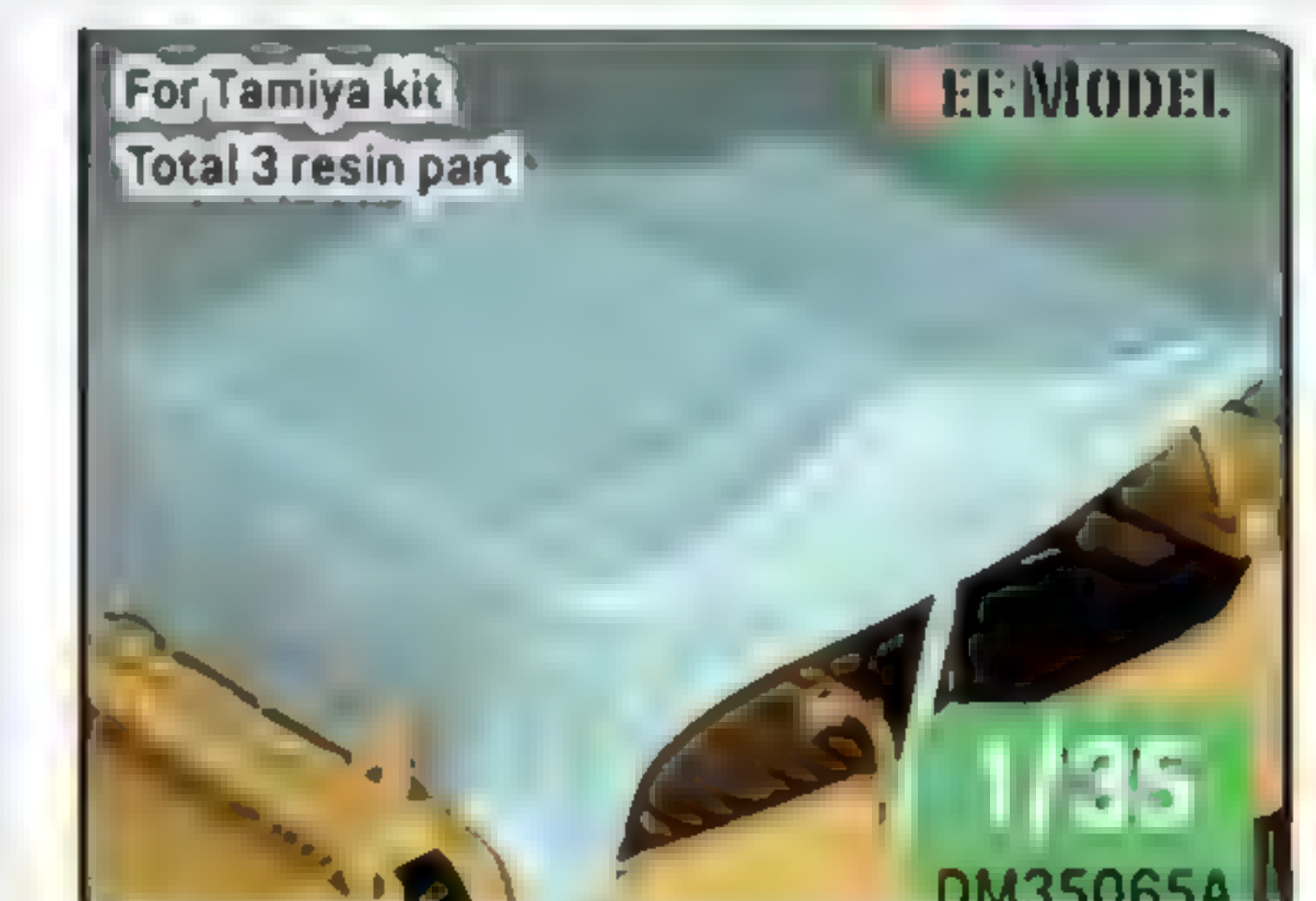
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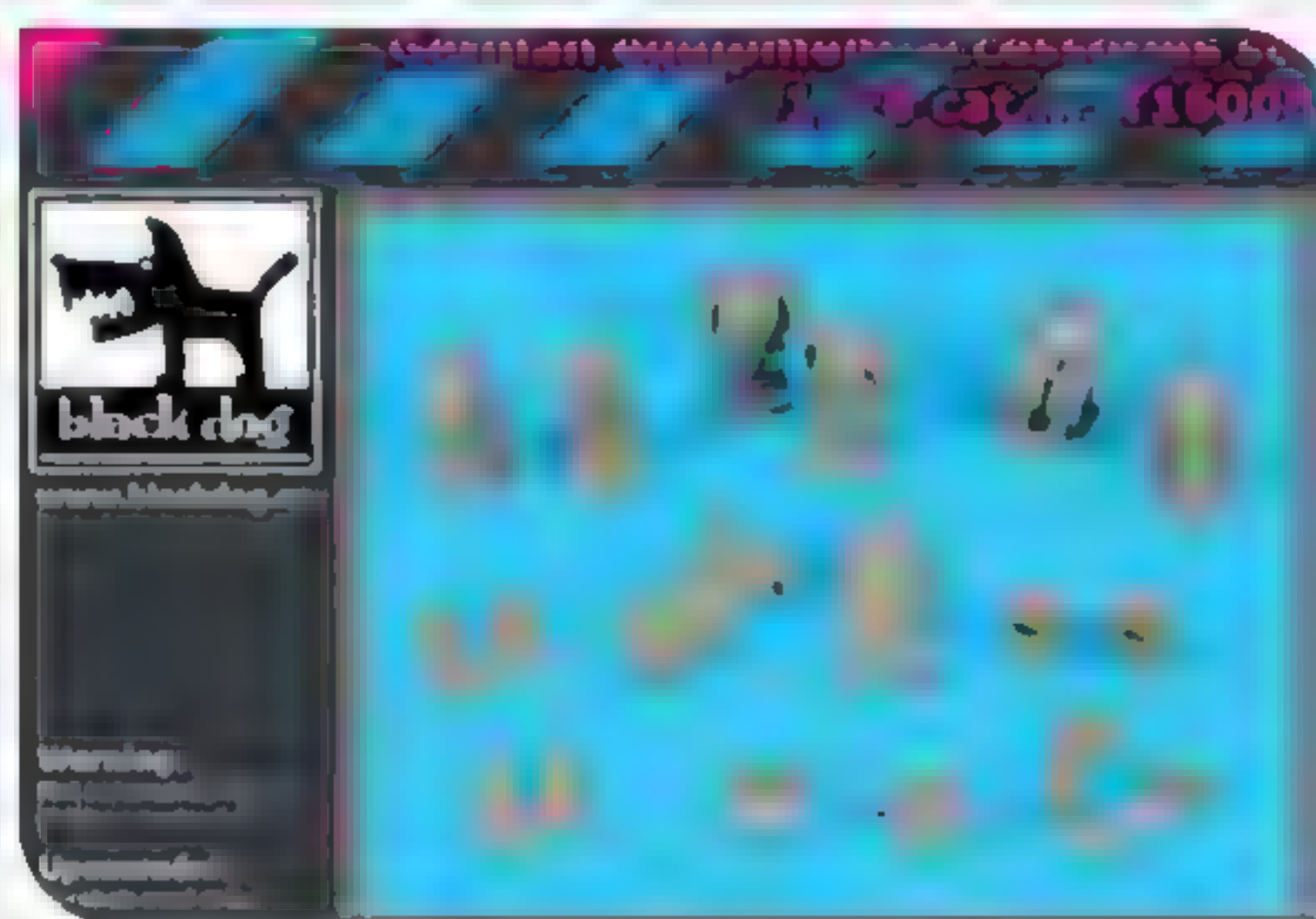
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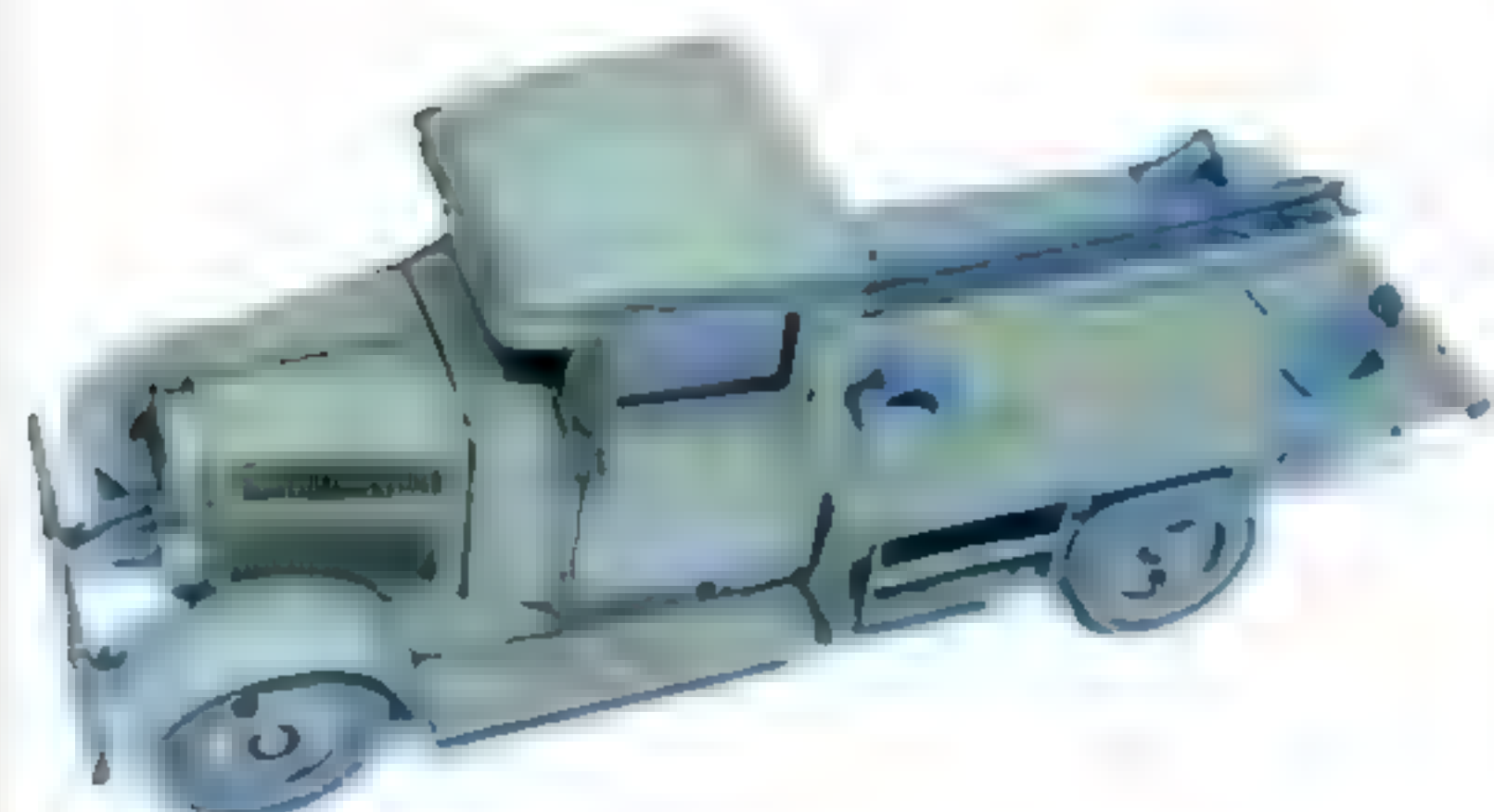
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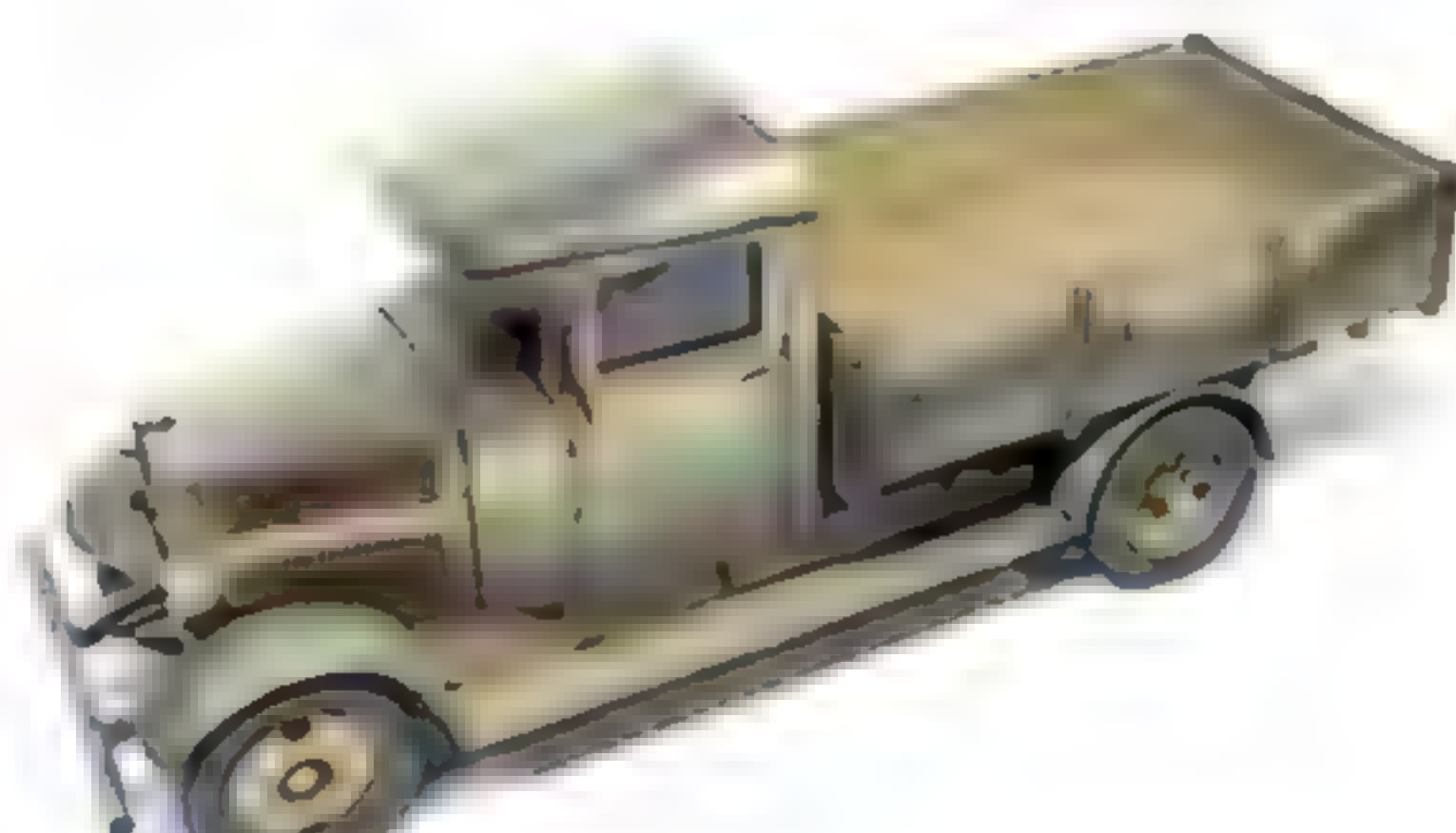
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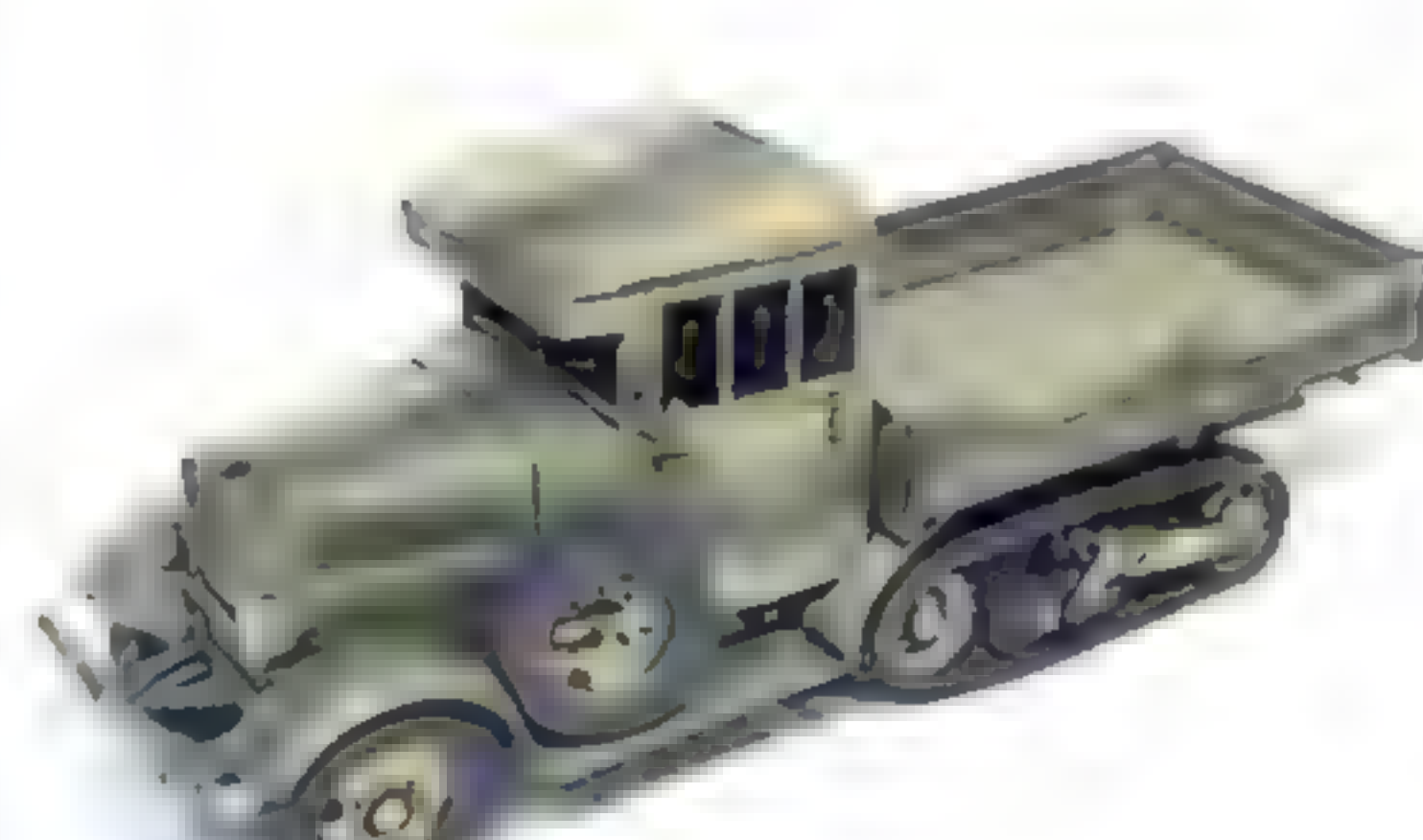
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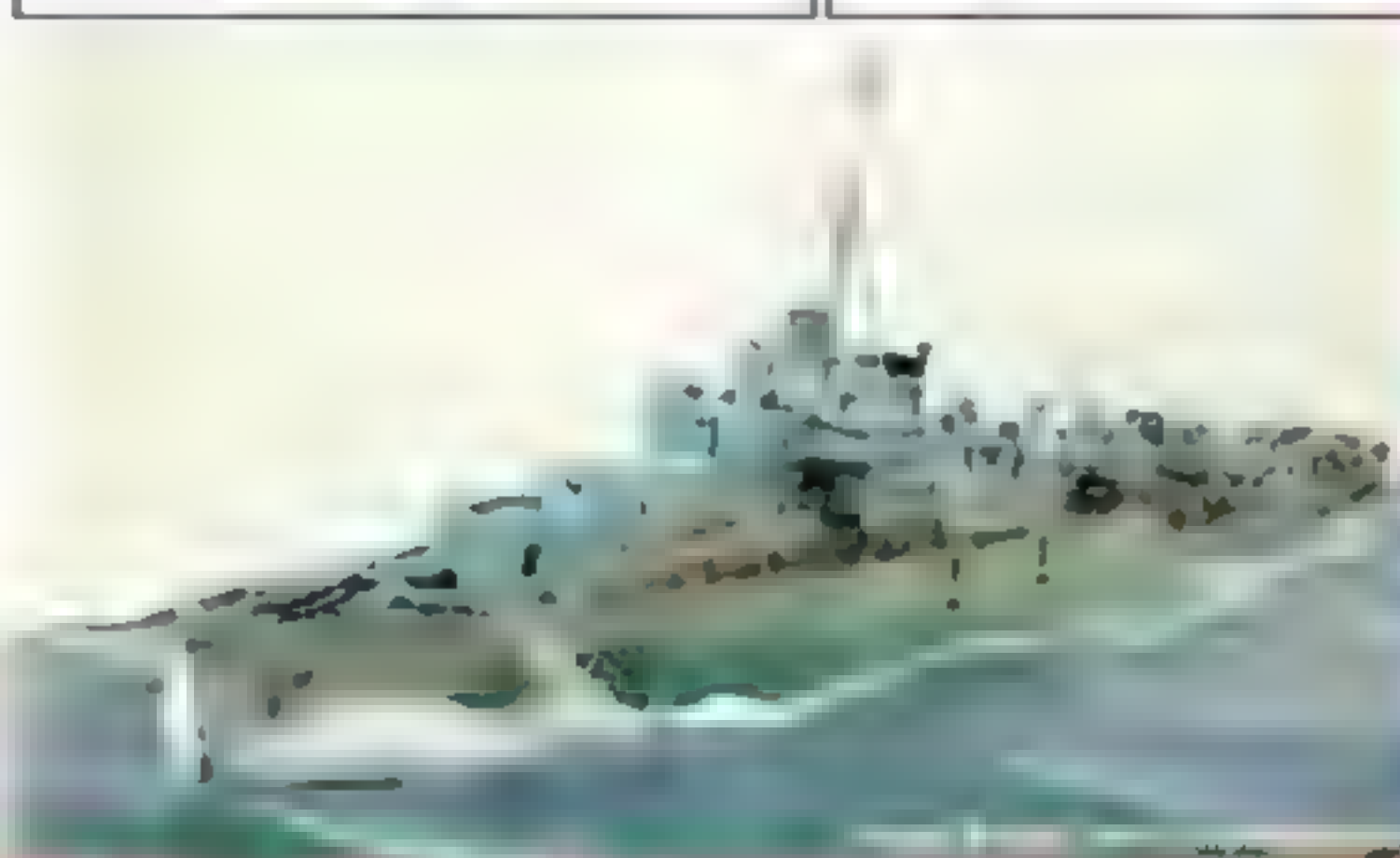
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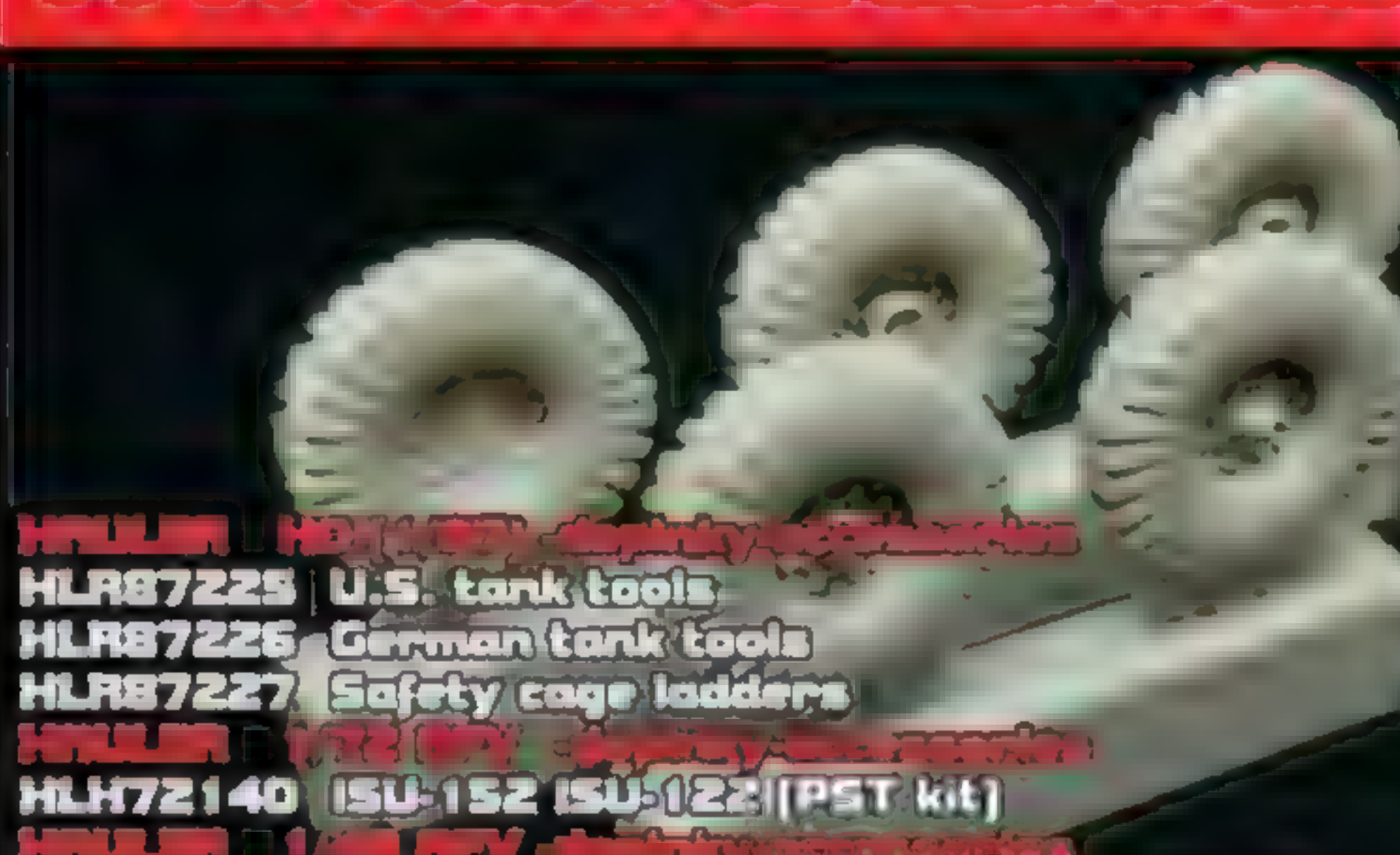
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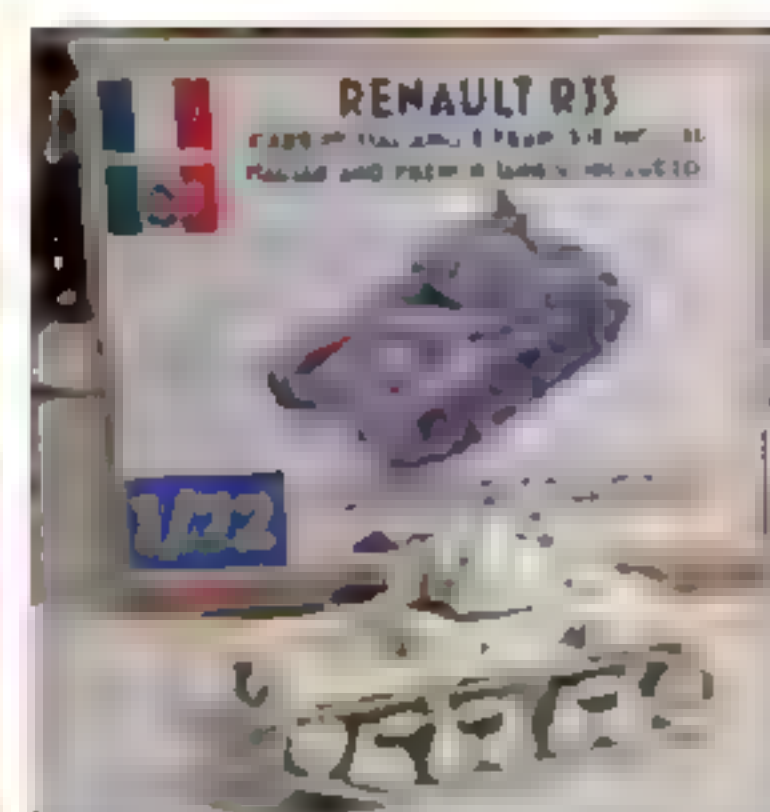
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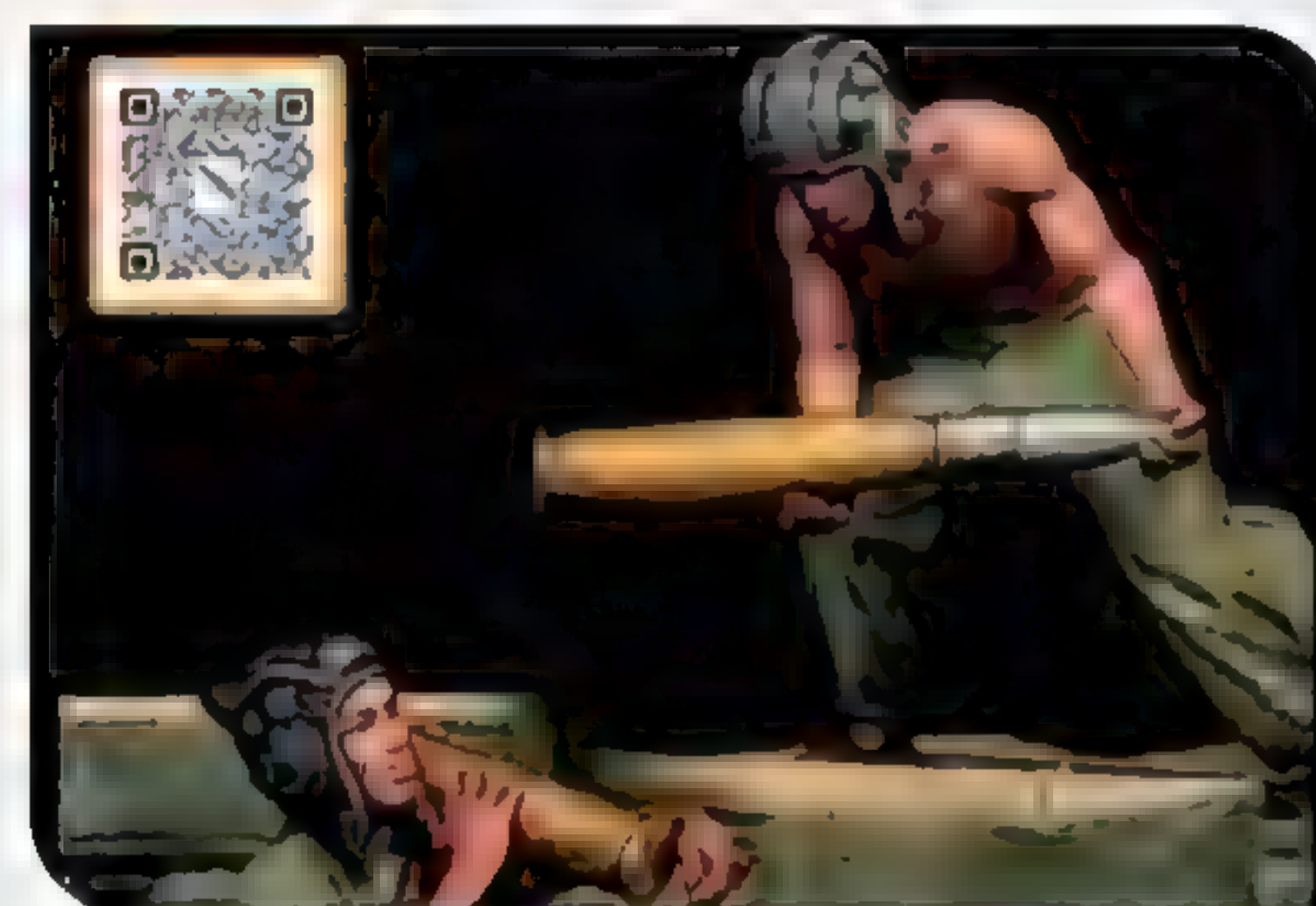
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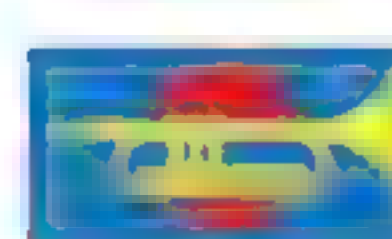
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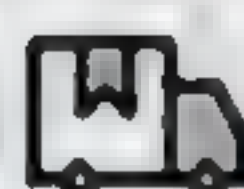
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# ON THE BENCH

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## RESIN TECH MODELS MT-25

**Rob Riviezzo**

As previewed in last month's issue, Resin Tech Models is a new company based in the Netherlands. Jan, the owner operator, has put a considerable amount of research and effort into creating exceptional 3D-printed upgrades primarily for World War II Soviet-based subjects. Using that same effort and quality, Resin Tech Models has produced a fully 3D-printed kit of the Soviet MT-25 Light Tank prototype which was a proposed project of a light wheeled caterpillar vehicle and made famous in the 'World of Tanks' video game. The kit is printed beautifully with only a small amount of layer lines, mostly on the front plate and parts of the front of the turret **(photo 1)**. It is shipped with the build plates connected to all the parts except the tracks, which is a good thing as it protects the kit from damage during transport. All the parts are printed

in logical groupings and the hull, turret, and air intake grills are a marvel in 3D printing in my opinion **(2 & 3)**. The hull is printed as one piece with complete fender detail, while the turret is printed with all the periscopes and periscope guards in place. The kit also comes with side specific tracks and track pins. The tracks are bagged by right and







left side and only have a small amount of connection points to clean up (4). The pins come attached to the build plate and are easily removed with a sharp hobby knife.

### Preparing the Parts

3D-printed kits are appearing everywhere it seems, so I thought it was worth some time going through the preparation and build of one of these relatively new-style kits. After inspecting all the parts to ensure nothing was damaged during shipping, it was time to remove them from their respective build plates. The hull was the most difficult to remove as it was printed with large connection plugs and supports on the rear, which again is a good thing as it protects the hull during shipment. Yet this meant it was a long process to remove and clean up. Thankfully, Resin Tech Models has since eliminated the large connection plugs on the hull print which will reduce the amount of time and effort needed to clean it up in

future purchases. To remove the large connection plugs on the hull, I used the excellent UMM razor saw that I had purchased from John Vojtech at a recent AMPS Nationals. The saw was able to quickly cut through the plugs with minimal pressure (5). The remaining connection points were removed with a pair of Tamiya side cutters that I use specifically for this job. The rest of the parts like the turret, suspension, wheels, and air intake grilles were all removed in the same fashion. Any remnants of connection points were wet sanded smooth with progressively higher grit sandpaper and sanding sticks to achieve a nice smooth surface (6). Using wet sanding kept the resin dust at a minimum, an important health and safety consideration when working with any resin kit. With all the parts cleaned up and laid out, it was time to first test fit each part to ensure everything fit correctly before adding any texture or weld detail (7 & 8). As predicted the parts fitted perfectly with zero adjustments needed.

### Applying the Armour Texture

Even though this vehicle never existed, real Soviet-era AFVs built in this style had a cast armour texture on the hull and turret. To create the cast armour texture, I used Gunze's Mr. Surfacer 500, applied straight from the bottle. Using a short-bristled brush, the Mr. Surfacer 500 was applied in small sections onto the hull and turret. The Mr.





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→ Surfer was first brushed on, then stippled repeatedly until it began to become rough and uneven. The randomness and uneven appearance are what you are looking to achieve and the more pronounced the better. Once the entire model was stippled with the Mr. Surface 500, I left it to dry for a few hours (9). The model was then progressively sanded with a 600, 800, and 1000-grit sandpaper to smooth out and knock down a lot of the texturing (10). This further created randomness and a realistic cast texture seen on these types of vehicles. I reapplied more Mr. Surfer to areas that had lost some of the texturing during the sanding process. Areas that should not have texturing, such as parts of the fender supports and turret roof – has the effect removed with a sharp hobby blade or a pointed cotton swab moistened with lacquer thinner. With the cast armour texturing complete, my attention moved on to adding the weld detail to the front and back of the hull and to the turret.

### Weld Detail

Resin Tech Models purposefully printed the MT-25 with no weld detail on the hull or turret. Instead, the areas that would logically need weld detail like the front hull plate have channels for the modeller to add this missing feature. The turret roof would also require weld detail, and that area is left with a perfect right angle around the edge of the top plate to allow you to create the welds. By using a hobby blade and scribe, I enhanced the channels that would receive the weld

beads (11). This would create a wider gap which I felt was more realistic and closer to what would have been on the real vehicle. I then mixed Aves Apoxie Sculpt two-part epoxy putty and applied it to the front and rear of the model using a chisel blade (12). The putty used on the turret roof and mantlet was rolled in long spaghetti-like strands and applied using water to allow the putty to adhere to the surface. The key here is to allow the putty to harden for at least an hour before creating the weld detail. This will ensure the putty does not raise or pull off the model. To create the weld detail, I used homemade tools created from various sized K&S brass tubes, cut and either rounded out in a half circle or flatted out. The tool is dipped in water, which again helps prevent the putty from lifting or breaking, and the impressions are made (13). It is a simple technique that I use on most of my armour projects (14).







## Building the Model

With the extra detail added to the model, it was time to attach the miscellaneous parts. The air intake grilles are beautifully printed and rival most photoetch grilles (15). Some adjustments to the bottom part of the intakes needed to be made as the fit was a bit too tight for my liking. So, I sanded most of the bottom off to allow the parts to sit flush on the rear deck. Once happy with the placement, they were glued in place with VMS Flexy Cyanoacrylate (superglue). The rear shackle mounts and exhausts had some slight gaps around each part. To remedy this, I applied Tamiya Basic Putty to the areas and sanded them smoothly and →

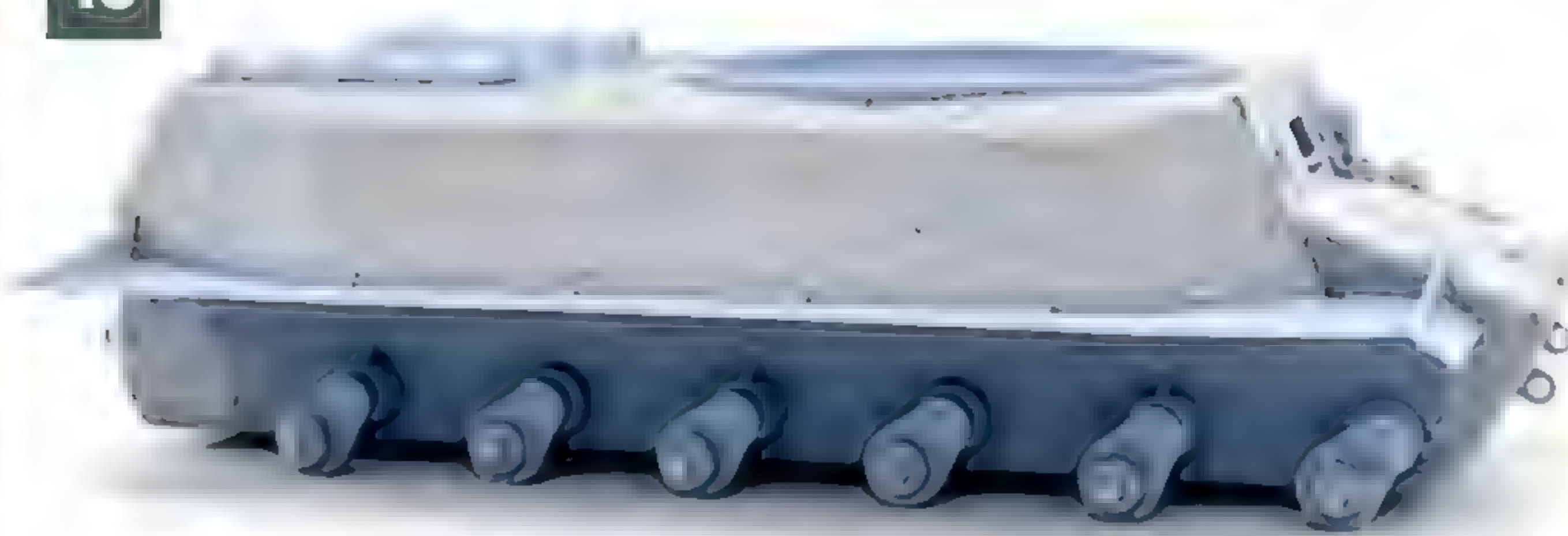




15



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→ then reapplied Mr. Surfacer to bring back the cast armour texture lost during the sanding. Other small details like the tow shackles, vision port, light, horn, and MG mount were attached to the hull with no issues.

The pistol ports on the side of the turret are very well detailed, and I wanted to show this detail off by depicting one of the pistol ports open. To do this, I first drilled a 0.2mm hole into the bottom of the pistol port and created a small loop using 0.32-gauge wire. The loop was then superglued into the 0.2mm hole. Another 0.32-gauge wire was then used to simulate the rope or wire connecting the pistol port to the inside of the turret.

## Suspension and Tracks

The suspension is comprised of alternating axles arms. Each suspension arm fits into a corresponding attachment point specific to it, which prevents misplacement of them.

The directions also clearly indicate the correct place for them to go as well as what wheel should be attached (16).

The tracks are side specific and printed with the outer pin already on the tracks. They are also alternating with a guide horn on every other track link. The track pins are inserted into the tracks from the inner side with no issue (17). I only had to drill out two tracks to allow the pins to fit correctly and each set of tracks

needed 45 track links per side. The tracks went together quickly and easily, and I was able to make both sides in less than a half hour (18).

## Conclusion

Overall, this was a very enjoyable project to work on and a nice palate cleanser as I contemplate larger, more involved projects. This was the first full 3D-printed kit I've made, and I was amazed at how good the quality of this kit was. I'm used to building kits with hundreds of parts, so a kit with only a fraction of those parts but which still has the level of detail was a nice change of pace. If Resin Tech Models can continue to make unique subjects like this, while also maintaining the same level of printing and detail of the MT-25, then I can't see them not being successful. Thanks to Jan from Resin Tech Models

for sending me the kit. You can purchase this kit as well as other upgrade products from their eBay store at <https://www.ebay.nl/usr/resintechmodels>. You can also correspond with them on their Facebook page, just search for 'Resin Tech Models'.

END





# AUSTRALIA'S HOBBY PAINT



#SMSPAINTS



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KIT: HOBBY BOSS

SCALE: 1/72

# IN THE SUMMER OF '41

**Stefan Szymanski**

builds a small-scale  
Panzer 38(t).



Last month's *MMI* was a bit of a celebration of the Czech-built Panzer 38(t) and all things Dunkelgrau, with an exclusive, in-depth reference article by Thomas Anderson and a superb build of the 1/35-scale Tamiya kit by Konrad Dzik. There's no doubt that the Czech-designed and manufactured Panzer 35(t) and Panzer 38(t) were vital to Germany's success in the early war years, and these diminutive tanks, and the other AFVs based on their tried and tested chassis, have always been popular with modellers. Until quite recently, quality kits of these tanks in small-scale have been in short supply, but now with the likes of Vespider Models and various 3D-printed makers entering the market, the situation is changing.

## The Kit

There are several small-scale kits of the Panzer 38(t) available in plastic, none of which are without their

issues. Attack Hobby Kits released a range of 38(t) kits over two decades ago and these are showing their age, while the recent First to Fight releases are good but lacking a few details. The UM kits are good, but with the limitations of all short-run injection-moulded models. So it was with some excitement that I learnt of Hobby Boss's release of a Panzer 38(t) in 2023. With this kit, Hobby Boss again lives up to its reputation of filling a gap with an interesting model, but then only partly implementing its good intentions.







The 38(t) is not large in 1/72 scale, only some 6.5cm long when assembled. There is only a single light brown sprue, but the plastic is cleanly moulded, and it promised to be a straightforward build at first glance. I was especially impressed by the rivet detail that is so characteristic of the tank and is nicely reproduced. A certain sense of disappointment comes at second glance. For example, the tracks are each available as a component single, which of course simplifies assembly considerably but at the price of some over-simplification **(photo 1)**. More frustrating is that the commander's hatch can only be displayed closed. As all my models are destined to become part of a diorama, closed hatches are always a nuisance. The pioneer tools are moulded on the hull, which is well done for the most part although the pickaxe and shovel are not convincing. The tow hooks are also moulded in place at the front and rear of the lower hull, which is another annoying shortcut. Note that components D6 and D10 are included in duplicate, although only one is needed. The building instructions, however, are admirably clear and complemented by a beautiful colour, multi-page profiles and decals for the six different tanks.

### The Build

Some models feel a bit like 'fast food', and this was the case with this kit: relatively few parts, no obvious complications and thus a problem-free and fast assembly. I overlooked the shortcomings of the kit mentioned above and intended to build the model out of the box, preferring to concentrate my efforts in this project on the diorama. Assembly proved as straightforward as I had expected, and due to the well-thought-out design of the model, there was never any risk of destroying the very fine rivet structure by sanding or filling gaps. I hid the over-simplified towing points with tow cables, which was the sum really of my remedial work on this model **(2 & 3)**. I used

the Accessories Set from BlackDog (ref. T72156) to add some life authenticity. This set contains a lot of stowage, some of which doesn't really make sense if I'm honest, so I concentrated here only on the components stored on the engine deck, so as not to visually overload the small tank **(4)**.

### Painting

At the start of the invasion of the Soviet Union, Operation Barbarossa, Wehrmacht vehicles were painted in overall Dunkelgrau, a very dark, almost black, shade of grey. It's a colour which needs some interpretation to make interesting in a model, especially in this scale. I resorted to the technique which had worked for me in the past. I was able to keep the model in sub-assemblies for the purposes of painting and weathering **(5)**. I started with AMMO's Grey Base (A.MIG-0908) and airbrushed this across the model. Then I airbrushed Grey Light Base (A.MIG-0909) to subtly highlight certain areas, especially the topmost horizontal parts of the model. I finished with Greystone (A.MIG-0911), with which I roughly dry brushed the model **(6)**.





4



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→ All the other paint work was done with a brush. After a coat of Vallejo Gloss Varnish (70.510), the decals were then applied and subsequently sealed with a second coat of varnish. This created the basis for the subsequent weathering phase (7).

On this occasion, I took a more discreet approach to weathering, refraining from any exaggerated rust effects. Rainmarks and dirt streaks also took a back seat this time. At the beginning of the Russian campaign, the vehicles were well maintained and mainly exposed to dust and heat. My one concession to 'extreme' weathering effects was that I concentrated on a few bare metal areas in areas of particularly high wear. I then added a dark brown wash, which further emphasised the distinctive rivet detail. Once dry and to further deepen the effect of the wash, I dry brushed the model with Revell Stone Grey (75) followed. To better harmonise the effects, the whole model was finally given a light brown filter with MIG Productions Tan for Tritonal Camouflage (F242)

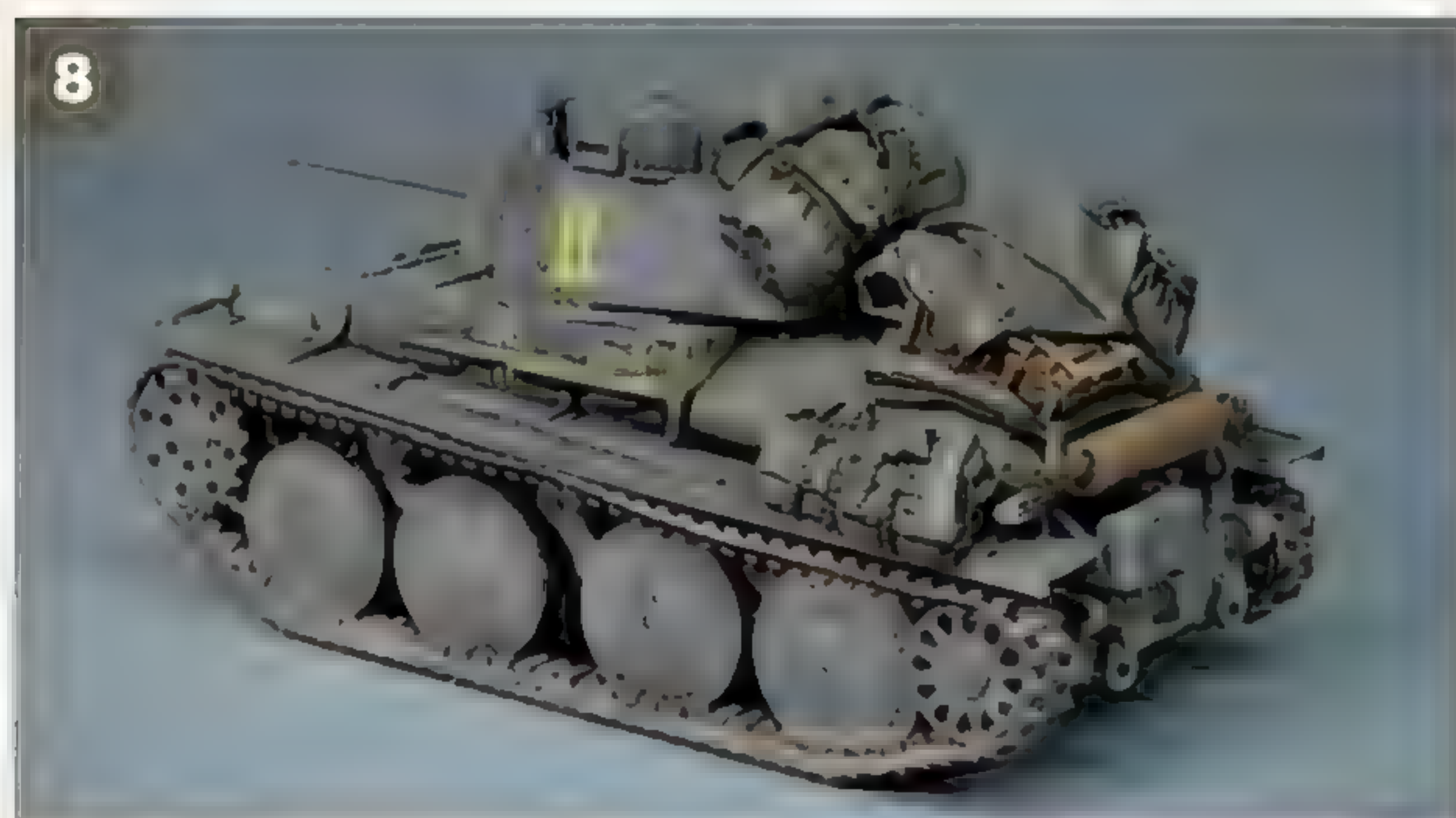
before sealing with Vallejo Matt Varnish (26.702).

Finally, I added some dust effects using pigments. I principally used AK Interactive's Europe Earth (AK042), which I applied in a highly diluted form using Pigment-Fixer and/or Thinner on the lower hull. On the upper hull I wanted a more subtle effect and decided against pigments, instead giving the model, including the stowage, an airbrushed filter of thinned Tamiya Buff (XF-57) (8 & 9).

## Setting the Scene

For this diorama, I was inspired by contemporary photographs showing long German columns advancing along dusty tracks into the Soviet Union. As usual, the base started with a pencil and a sheet of paper, on which I determined the exact proportions and dimensions of the diorama. Appropriately sized chipboard and trim strips were quickly sawn, vertically adjusted, painted black and masked. Now it could get on with

8



9





10



forming the basic groundwork. Using Styrodur, I made the vertically offset plateau. This was followed by a rough coat of filler. Then, using bird sand, talcum powder and a wood glue/water mixture, I added the textured ground. It's important to let this dry thoroughly for a few hours before proceeding. The same pigments used on the 38(t) were now also used to colour the groundwork.

At what would be the forest edge I used somewhat darker pigments, principally AMMO's Golan Earth (A.MIG-3026) used (10). Now it was time to add the spruce trees. Here I resorted to products from Titans Hobby. The spruce trees (ref. TTH266) are not exactly cheap, but they are very realistic and saved me a lot of time and effort trying to make my own. Next, I added the substrate for the forest, applied mainly in the forest edge area, using Reality in Scale Ground Base - Bombed Forest (ref. RISBAS05) fixed with Sand & Gravel Glue (A.MIG-2012) (11). I simply loaded the glue on a large brush, touched it to the scatter material and let capillary action do the rest. A few tufts of grass added variety to the scenery. Finally, I planted some bushes to further demarcate the forest edge. The tufts and bushes were painted in various greens and browns to homogenise the appearance of the various groundwork elements. To give the groundwork the hot, dry and dusty feel I wanted, the whole diorama was oversprayed with thinned Tamiya Buff (12 & 13).

## The Figures

It always amazes me how I struggle to find the right figures for my projects. When it comes to Wehrmacht figures, you really have a lot to choose from, but perhaps 90 per cent of these are only appropriate for later

11



periods of the war. So, I fell back on my old stock, finding two figures by Milicast that had been living a dreary existence in a drawer for many years. I had fewer problems finding the marching infantry. I used several sets of TDQ Castings/CP Models. The figures, made of soft metal, have lovingly designed details. The weapons are not as detailed as the rest of the figures, but still useable. A single infantryman from Munich rounded off the complement. After a primer coat, they were painted exclusively with oil paints, sealed with matt varnish and airbrushed with matt varnish (14). A quick overspray with the thinned Buff brought them nicely in line with the diorama's other elements. After that, you could really appreciate the dusty conditions the Landser battled with in the summer of 1941. →





12



13



12

*I fell back on my old stock, finding two figures by Milicast that had been living a dreary existence in a drawer for many years.*



## → Conclusion

As modellers, sometimes we need a simple build. The 38(t) by Hobby Boss is certainly that, and I was able to pay far more attention to the 'dessert' in the form of the diorama. The model's shortcomings, except for the moulded-shut hatches, didn't detract from the project and for modellers wanting a more involved 38(t) kit, there are alternatives out there. On this occasion, however, the kit played its part, and I was able to create a diorama which, I hoped, captured the feel of the 'summer of 1941.' **END**

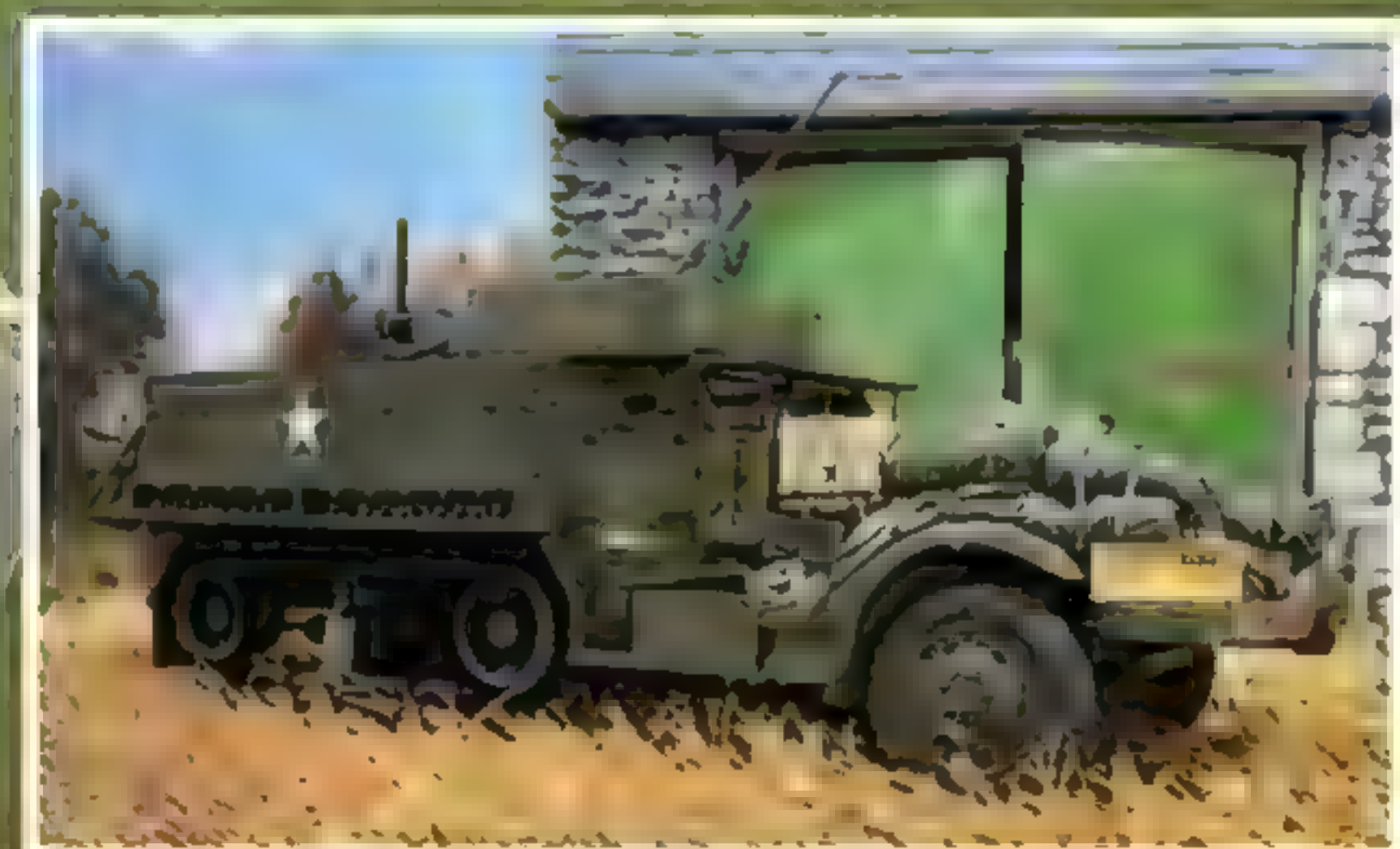


## AVAILABILITY

Hobby Boss 1/72 Pz.Kpfw. 38(t) Ausf. E/F (ref. 82956) is available from good model shops.



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The Sherman M4A3 Medium Tank (unassembled kit)

70002.....\$160  
US M3A1 Half-track (shown completed)



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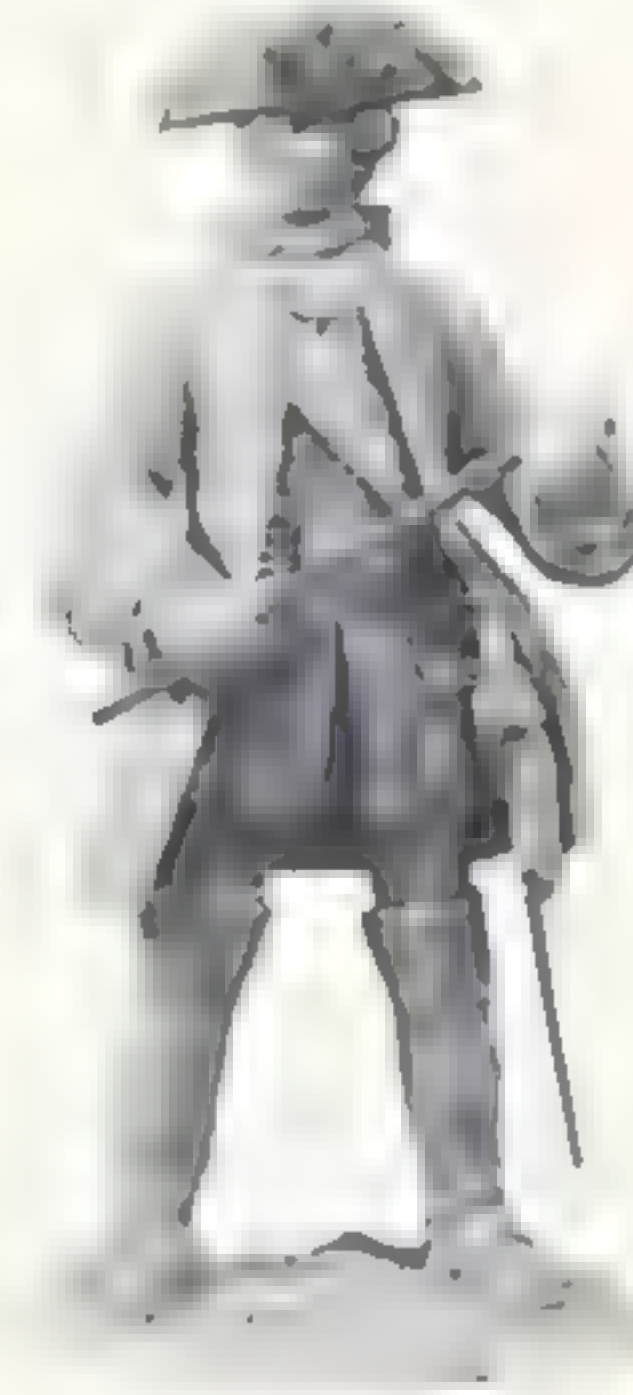
70027.....\$25  
\*U.S. General George S. Patton, Winter, 1944-45



70033.....\$25  
U.S.N. Sailor in Whites with Seabag and Hammock, 1920-41



70034.....\$25  
British General James Wolfe, 1759



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French General Marquis de Montcalm, 1759



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# Blast from the Past

**Kristof Pulinckx**  
builds some classic  
Tamiya armour.

KIT: TAMIYA  
SCALE: 1/35

**A**lthough the Tamiya Jagdpanther is an older kit, first released in 1996 and replacing their first Jagdpanther kit released twenty years earlier, I was always attracted by the box art. The kit represents the last production batch of Jagdpanthers, assembled in the MIAG factory in December 1944 and January 1945. There are newer and better detailed 1/35-scale Jagdpanthers from the likes of Dragon, Meng and Takom, but that box art just screams "Buy Me." And this is just what I did.

The kit is now showing its age, and some updates are required to bring it to today's standards. I used photoetch and a metal barrel from Aber, metal tracks from Friulmodel, and a metal tow cable from Eureka.

As I like to give the model a human touch I choose to add three figures. All are from Dragon, converted and improved with resin Hornet heads.

The choice for the camouflage was obvious: just like the box art. The model wouldn't be put in a diorama or even a scenic base. Just like the box art. The Jagdpanther is a classic AFV, and I think every tank modeller should have one in their collection.







*The Jagdpanther is a classic AFV, and I think every tank modeller should have one in their collection.*

## CONSTRUCTION: STEP-BY-STEP



1

The outer roadwheels were replaced with ones from a Dragon kit, as these are better detailed and correct. They fitted the Tamiya kit with some slight modification. Using a sharp knife, I added wear and tear to the wheels. Small chunks were cut from the tyres to depict wear and tear on the rubber.



2

I thinned the rear faces of a couple of roadwheels and then used knife is to add a hole depicting shrapnel damage. →

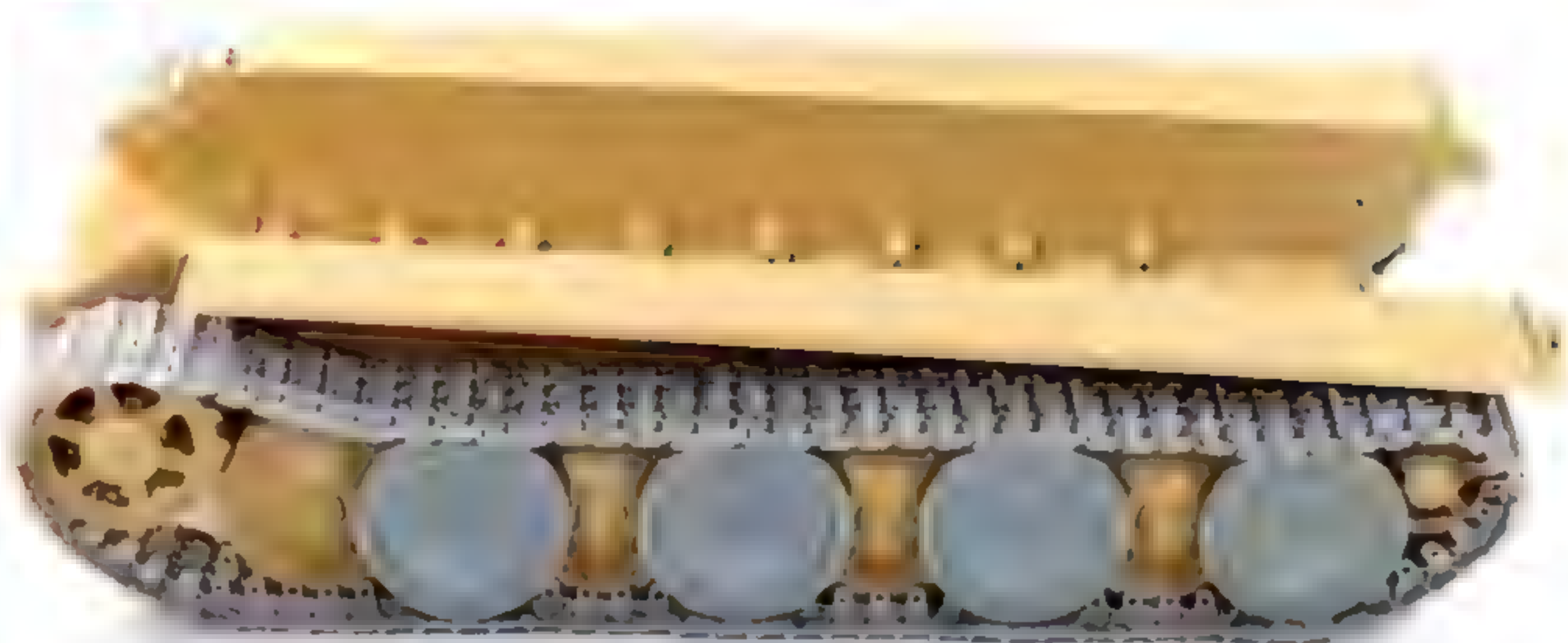


3



→ I replaced the vinyl kit tracks with the Friul metal ones. Each link needs drilling out so a wire can be added to act as a track pin, secured with a drop of superglue. Once assembled I sanded the treads with 400-grit sandpaper to impart some wear.

4



A quick test fitting confirmed the tracks were the required length. The tension of the tracks can be adjusted by keeping the idler axle loose until the tracks are mounted.

5



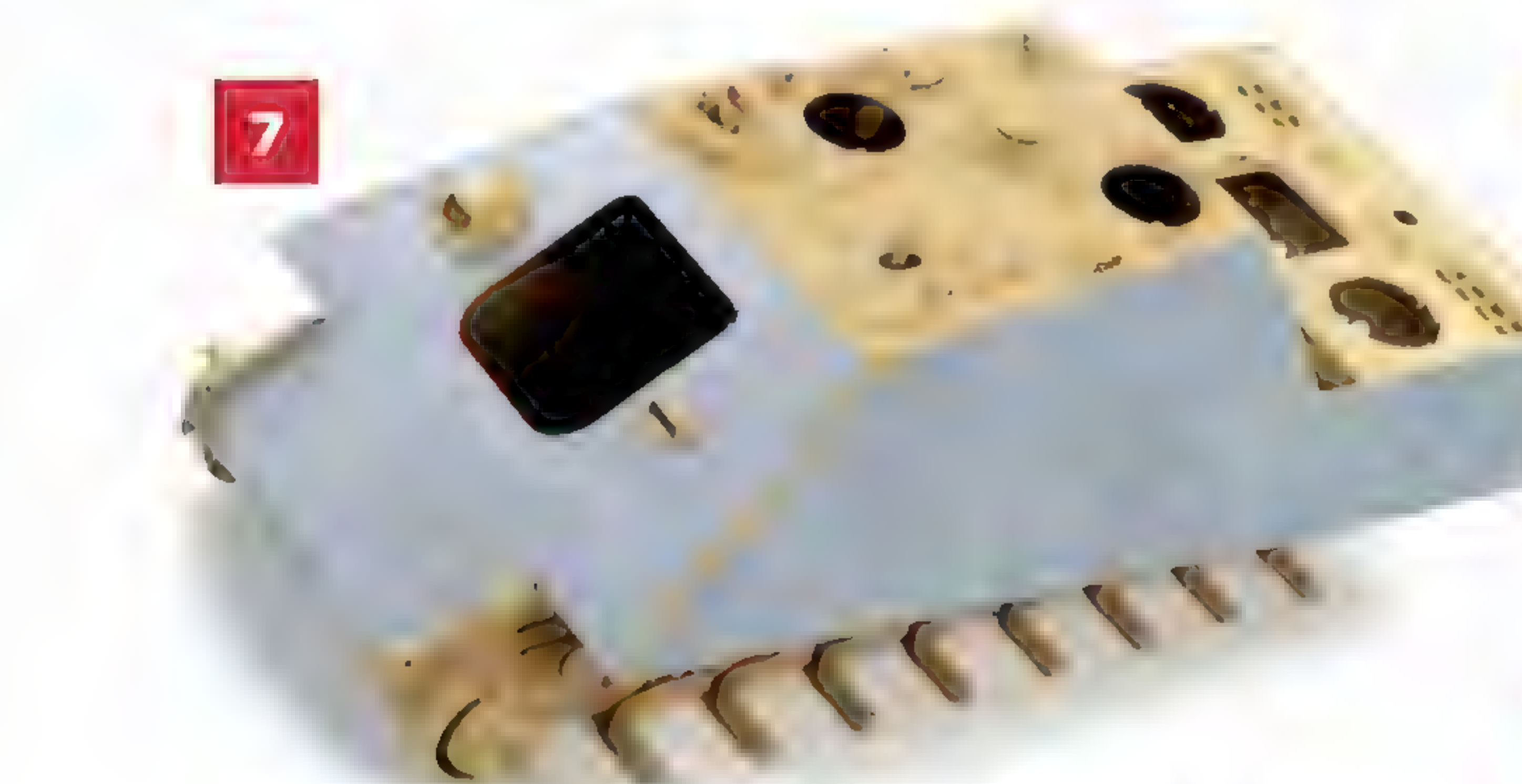
The location holes for tools were drilled out, then filled with plastic rod secured with superglue. The rod was then cut off flush and sanded smooth in preparation for the addition of the photoetch.

6



The front fenders were also removed, giving more character to the model. They were gently cut off and the area sanded smooth.

7



I then added some rolled steel texture to the model. AK Interactive Quick Type Cement was used to thin down Tamiya putty which was then stippled on. Once dry, it was lightly sanded with an 800-grit sanding sponge to smoothen out any noticeable irregularities.

8



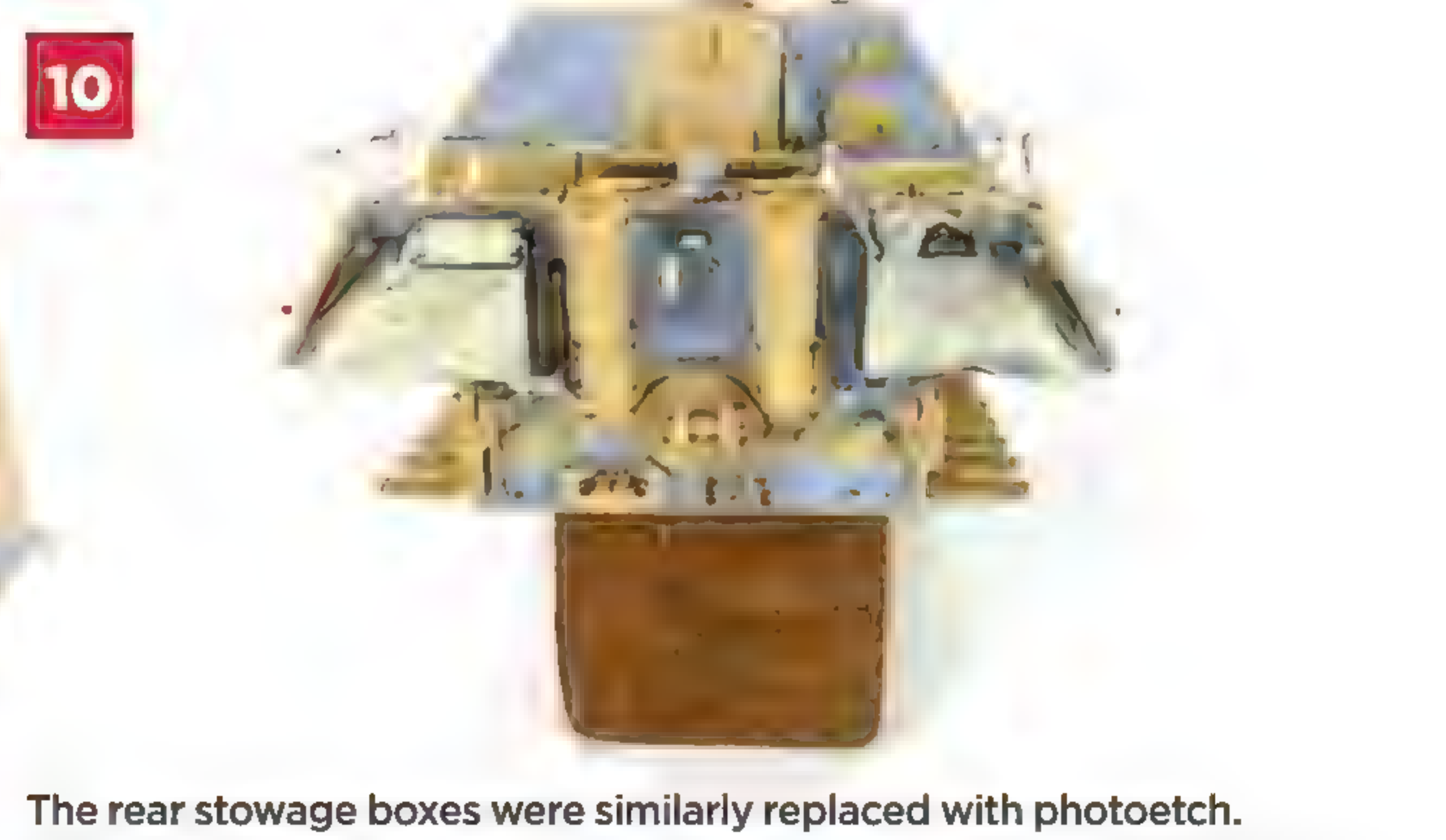
The Aber barrel was a perfect fit to the gun mantlet with no modifications. It was better detailed than the plastic version and no filling and cleaning up of seams was required.

9



The side rails were replaced with photoetch, which allowed me to add damage to the fenders, bend them or even leave off a part.

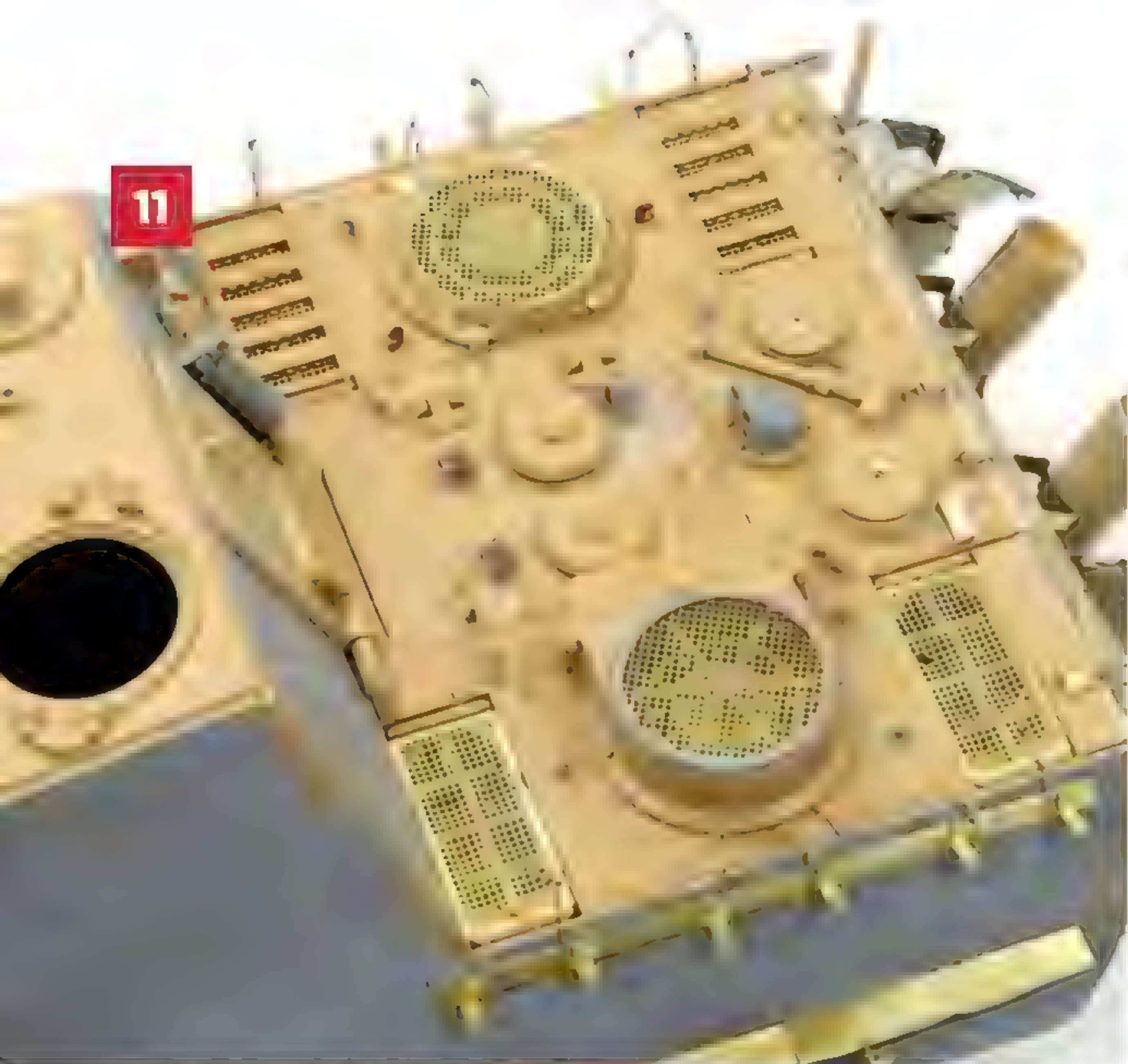
10



The rear stowage boxes were similarly replaced with photoetch. Soldering is required to assemble them as superglue won't do the job. One was opened and a tarpaulin and some tools added to bring it to life.



11



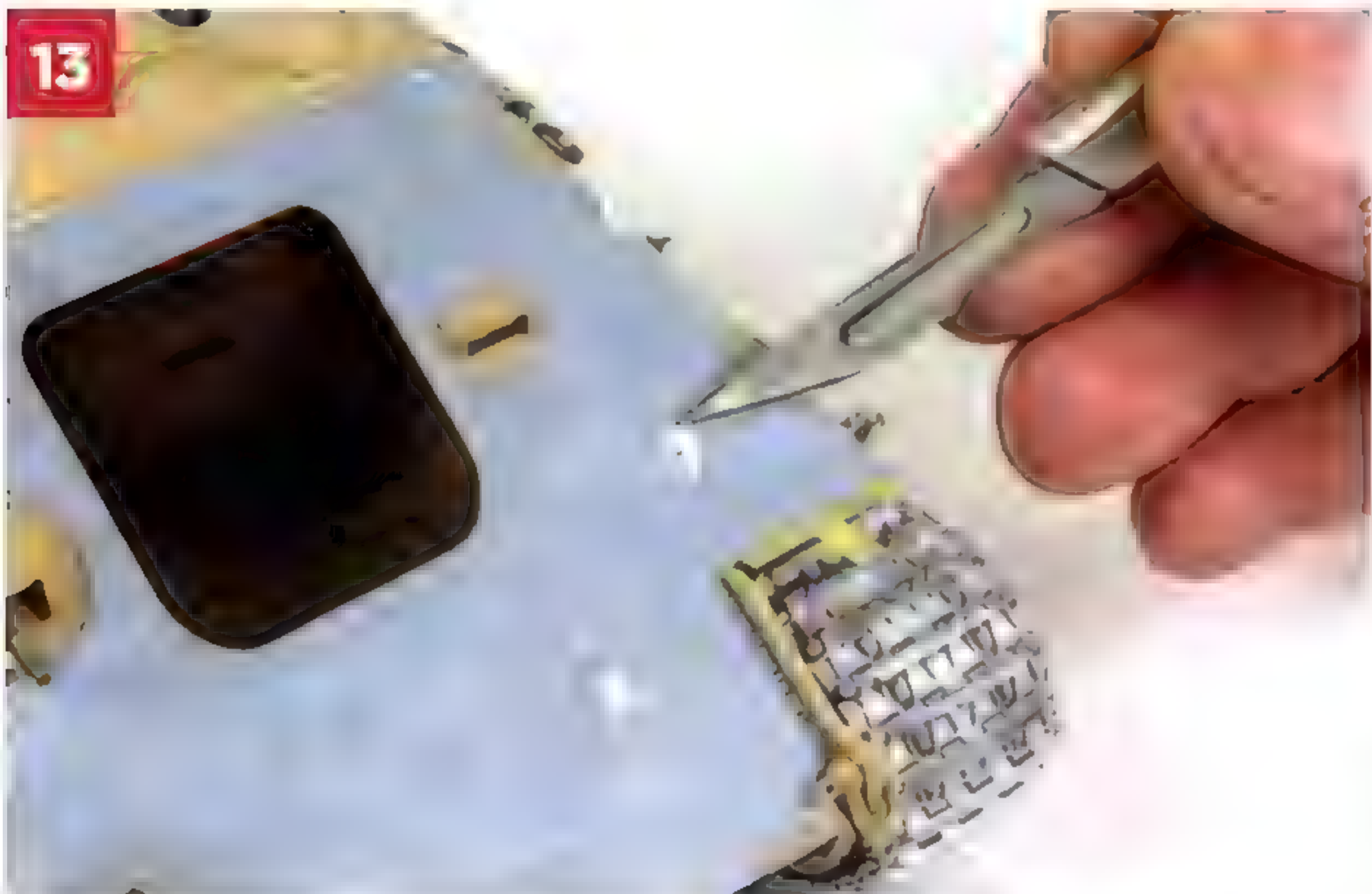
The engine deck of the Jagdpanther is full of detail. Some parts were taken from the Dragon kit, as they are better detailed and easier to rework than the Tamiya kit parts.

12

The spare tracks on the rear hull sides are a highly visible part of the model, so I invested some extra work in them, adding track pins from thin plastic rod.



13



I added some shell impacts to the glacis plate. I marked these with a pencil, then drilled a 2mm hole (roughly the scale calibre of a 76mm Sherman round). I then roughened the edges and added a little putty. Before it dried, I used the end of a paintbrush handle to sculpt typical shell impact damage, thinning the putty with a scalpel where necessary.





## → PAINTING AND WEATHERING: STEP-BY-STEP



14



I began with a green base coat mixed from three parts NATO Green (RC080) to one part of British Sand Yellow (RC093). The second colour, Rotbraun was mixed from Earth Red (RC 031), British Sand Yellow and a drop of Red(RC006).

15



The thin stripes of Dunkelgelb were added with Sand (RC084), carefully following the box art and instructions. I added the markings using dry transfers from Archer, positioning them in place with tape and gently rubbing them down with a soft pencil.

16



In preparation for weathering, I airbrushed a couple of thin coats of satin varnish. I always first try and weather a small part of the model to completion to check the final appearance, going quickly through the various steps. I did that and was happy with the result, so continued by profiling the details with a Shadow Brown oil paint wash.

17



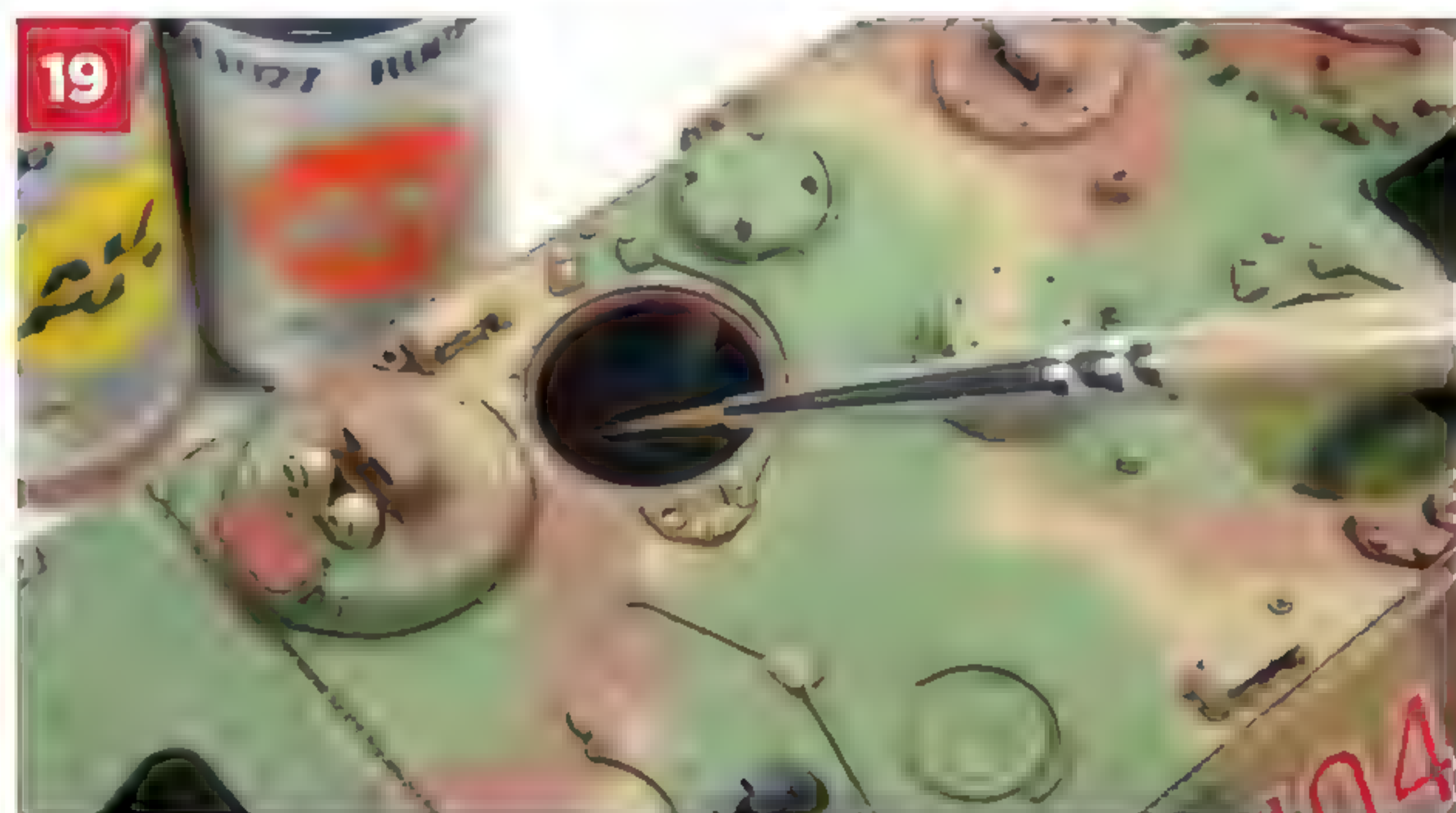
Once this had dried and any excess had been removed, I started to add highlights. I went over the edges and small details with a light sand yellow acrylic to create an effect similar to that achieved by dry brushing, albeit more controlled.

18



Lighter shades of three basic camouflage colours were used for the initial chipped paint effects. These were mainly applied using a sponge and then appearance refined with a fine brush.

19



Next deeper paint chips were added using a mixture of Deep Brown (AK11102) and Rubber Black (AK 11027). Be sure to leave some of the lighter colour showing around these deep chips to give an illusion of depth.



20



Where sections of the side rails were missing, I applied a piece of masking tape and added the weathering that occurred before the section was lost. The weathering itself was carried out with earth toned oil paints.

22



The effect of grease around the area of the gun barrel that recoils into the mantled was mimicked with Abteilung 502 Engine Grease oil paint. Small details like really help tell the story of a model.

24



Very sparingly, I added some Splatter Effects Dry Mud (AK8027) and a little Sea Grass. Once dry, some thinned Wash for German Dark Yellow (AK300) was applied overall to blend the different effects.

26



I added some subtle oil leaks and stains on the roadwheels. Fresh Mud (AK016), an enamel-based product, is perfect for this as it dries to a sight sheen.

21



The shells impacts were first painted a light grey, then overpainted in a medium rust tone. I stippled Shadow Brown oil paint around the impact site and then blended it with a soft, dry brush. Finally, chipped and scratched paint effects were added around the impact.

23



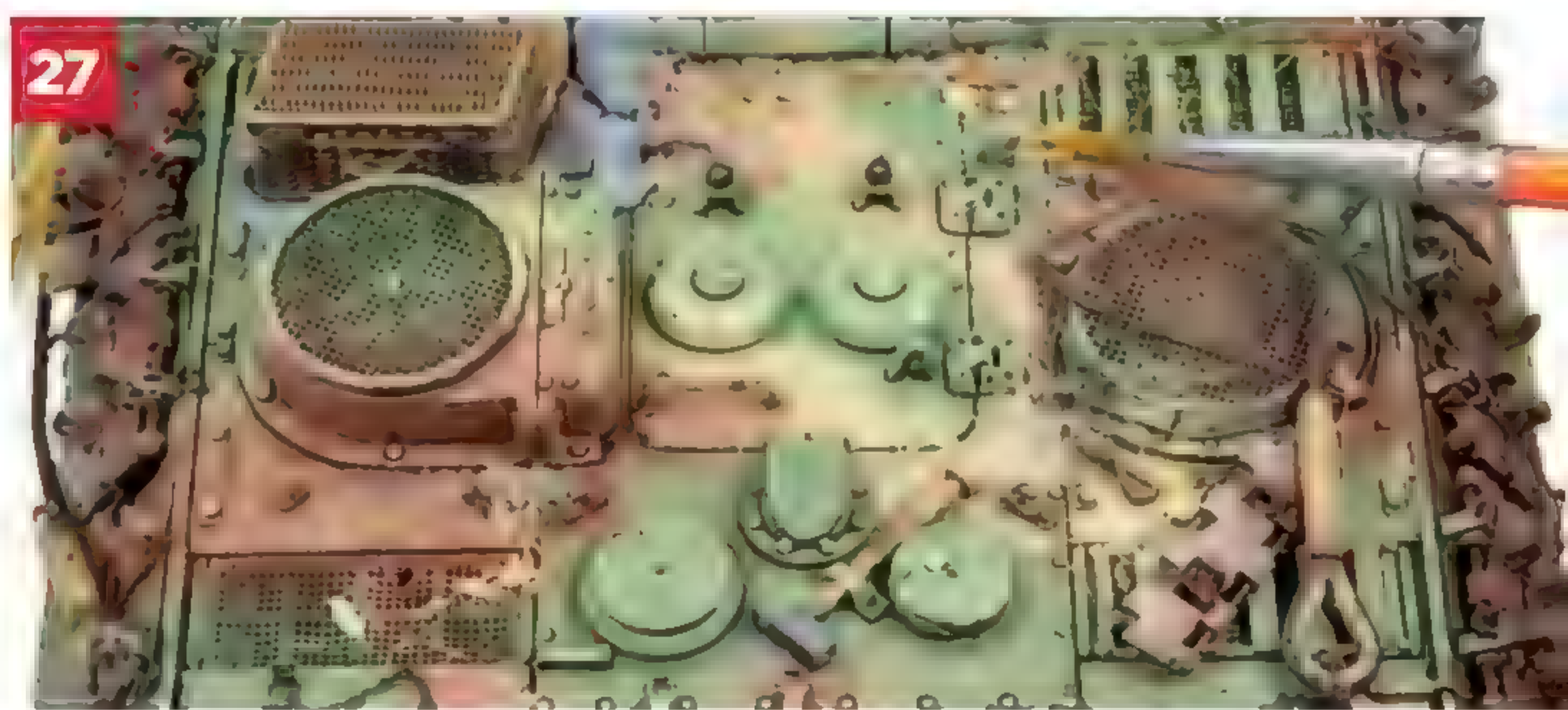
Adding dust effects to the model began with a 50/50 mix of Summer Kursk Earth (AK080) and Africa Dust Effects (AK022) enamel washes applied to places where dirt and dust would accumulate. This was also blended in with a soft, dry brush.

25



The wheels were weathered with mud mixed from Dry Mud Splatter Effects (AK8027) mixed with New Iraqi Sand (AK11361) acrylic paint. It was carefully applied with a toothpick, so as not to obliterate all the detail on the wheels. Once dry, I went over it with the previously used enamel-based dust wash to tie the different elements together.

27



The accessories on the engine deck were painted and weathered. I then applied a small amount of dried mud, some Sea Grass strands and some crushed, dried leaves. This was secured with dilute Sand & Gravel Fixer (AK118). Ensure you shake this product well as it can leave a slightly glossy finish.



28



→ The tracks were first painted dark brown, then mud was added using the same products and techniques as previously described. I started with the lighter dry mud, then progressed to the darker, wetter effects. I sanded the paint off the contact points to reveal the bare metal and used a graphite pencil to show where the roadwheels came into contact with the inner face.

30




Finally, the tow cables, previously painted a dark brown, received a metal effect with a pencil, simply rubbing it gently over the surface to create a metallic sheen.

29



I again used the Engine Grease oil paint replicate the effects of oil, water and spilled fuel. The oil paint was thinned with white spirit and simply painted on.

## Conclusion

Building an older kit doesn't necessarily building an inferior kit. The level of detail may not match the latest releases, but the basic shape of the model and the fit will often be as good as their newer counterparts. You can choose to super-detail the model using aftermarket accessories or your own scratch-built improvements. And, of course, your paint work plays an important role too. In this case I wanted to recreate the camouflage on the box art, and by imparting some battle damage and adding a few figures, bring this iconic piece of history to life. 



## AVAILABILITY

Tamiya 1/35 German Tank Destroyer Jagdpanther Late Version (ref. 35203)





# ARMOUR IN PROFILE

Profiling the men and machines of armoured warfare

A good view of a USMC M110A2  
in the travelling configuration.  
(US National Archives)



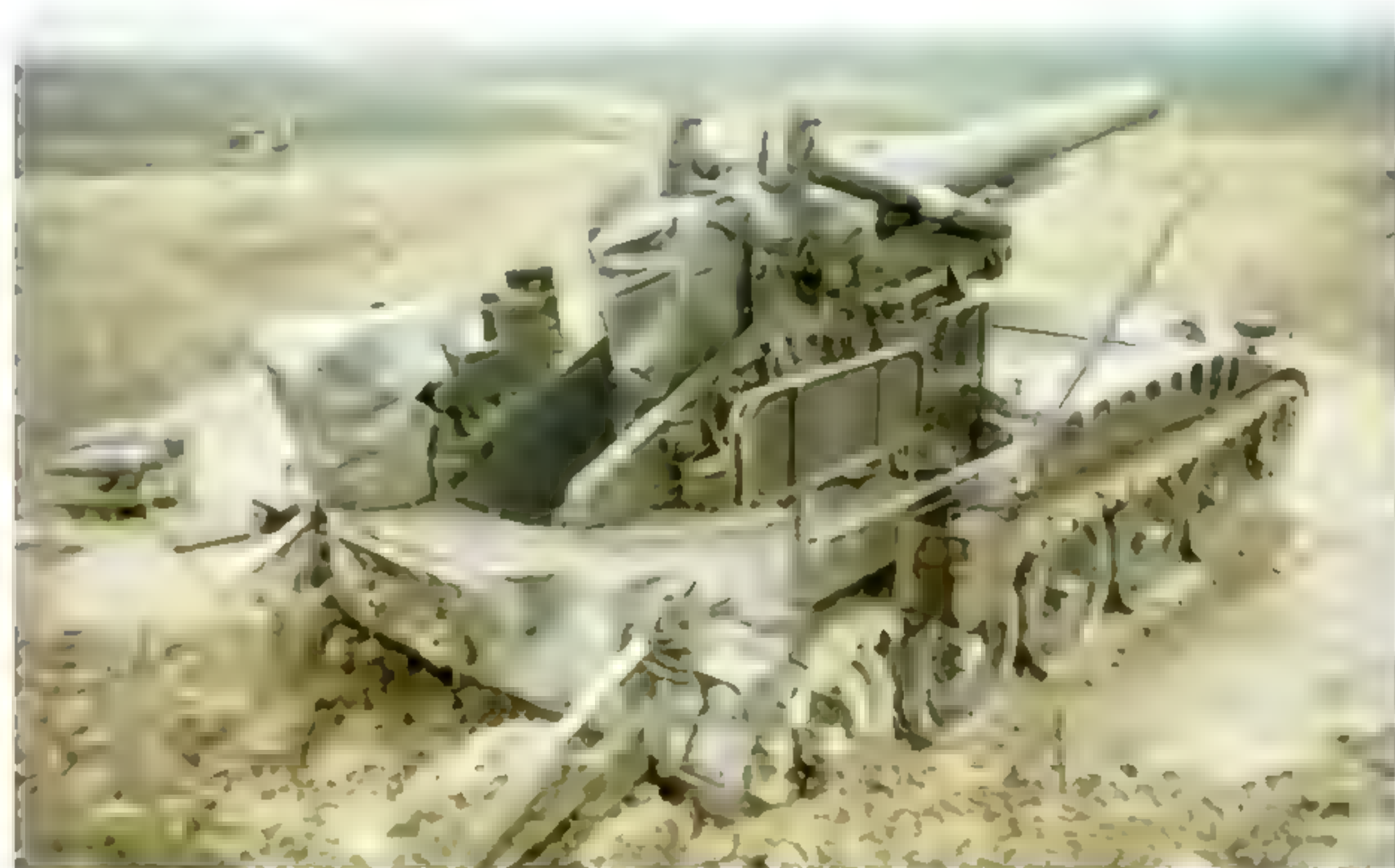
## Cold War Kings of Battle

**The Editor** looks at the M107 and M110 Self-Propelled Howitzers

When World War II started in 1939, self-propelled artillery was still in its infancy. The US Army was one of the pioneers in this regard, recognising the need for fires to be available to support infantry and armour in a fast-paced battle. In an early attempt to provide a self-propelled gun, in June 1940, both the M1897 75mm gun and the M2A1 105mm howitzer were adapted to fit the M3 halftrack chassis as the T12 Gun Motor Carriage and T19 Howitzer Motor Carriage respectively. This stop-gap measure was employed in North Africa, Europe and the Pacific from 1941 until 1944. In 1942 the US Army Ordnance Department also developed a 75mm M2/M3 howitzer mounted on an M5 light tank chassis. The gun had a maximum range of 9,613 yards and saw extensive service during World War II as the M8 Howitzer Motor Carriage, with a total of 1,778 being manufactured by the end of the war.

The mobility of halftracks was limited, however, and soon efforts were being made to develop self-propelled artillery on fully tracked mounts. The M2A1 105mm howitzer was simultaneously mounted on an M3 and subsequently M4 tank chassis to create the 105mm Howitzer Motor Carriage M7. Some 3,600 M7s were manufactured between 1941 and 1945. The first M7s saw service in the Philippines in 1941, and they also served with the British Army, proving particularly effective

at the Second Battle of El Alamein in October 1942. From 1943 development also started on mounting the 105mm howitzer on the chassis of the new M24 Chaffee light tank. This resulted in the M37 Howitzer Motor Carriage which entered production in January 1945, too late to see service in World War II. 336 of the original order of 448 were completed and the gun saw service in the Korean War before it was withdrawn from the US Army in 1953.



An M110 of Charlie Battery, 2-94 Field Artillery at Firebase Nancy near Huế in Vietnam in November 1969. (US National Archives)





The M110E2 prototypes on the range in September 1975.  
(US National Archives)



Carriage. With a crew of six and a maximum range of 21,982 yards, it proved an effective weapon and 100 were built, seeing service in north-western Europe in 1944-45. This was superseded by the 155mm Gun Motor Carriage M40 in 1945. This mounted either a 155mm M1A1 or M2 howitzer on a modified M4A3 tank chassis with HVSS suspension. Crewed by eight men, it had a range of 25,722 yards firing a 95-pound projectile and saw service in Korea. The M1155mm howitzer was also mounted on the M24 chassis in June 1945, resulting in the M41 Howitzer Motor Carriage M41. Eighty-five were built before the war ended. It too saw service in the Korean War.

The US Army also developed a self-propelled mount for the M115 203mm howitzer. It was designed to replace the M12 but only a single prototype vehicle was used in north-west Europe in 1945. It had a maximum range of 18,515 yards firing a 200lbs shell and saw extensive service in Korea. Anticipating the need for heavy, self-propelled artillery for the invasion of Japan, the US Army also developed the 240mm Howitzer Motor Carriage T92 and 8-inch Gun Motor Carriage T93 in 1945. These were based on M26E3 Pershing heavy tank chassis but only five T92s and two T93s were produced before Japan surrendered and the programme was abandoned.

US field artillery, organised at both divisional and corps level into separate battalions, was a spectacular success during World War II. Innovations, such as the use of Forward Artillery Observers, especially with armoured divisions, meant that the field artillery could effectively support the rapid advance of American forces. As General George S. Patton Jnr commented: 'I don't have to tell you who won the war. You know our artillery did.' In Korea, however, US field artillery proved more problematic. There were not enough guns, nor enough ammunition because of a move to peacetime production rates. Nevertheless, what artillery

→ Heavier self-propelled artillery was also developed by the US Army during World War II. The first was an adaptation of the 155mm M1917 and M1918 howitzer, a near copy of the French 155mm GPF gun, to the M3 chassis. The prototype T6 Gun Motor Carriage was tested early in 1942 and entered production in September that year as the M12 Gun Motor

An M110A1 on the range in December 1978. Note the crew cover, a feature often seen on M110s in service and the heavy coating of dust.  
(US National Archives)





One of the early prototypes M110E2 with the longer M201 gun tube in December 1975 prior to being loaded on a McDonnell Douglas YC-15 aircraft.  
(US National Archives)



was available supported the troops effectively, especially against massed enemy infantry attacks. However, in the wake of the Korean War as thoughts turned to the battlefields where the US Army might be employed in the future, it became apparent that the self-propelled field artillery that had proved so effective during World War II required a major rethink.

## Imagining the Battles of the Future

In the early 1950s a series of seminars – known as the Questionmark Series – were convened by the Detroit Arsenal to examine radical ideas for new armoured fighting vehicles. While discussion of nuclear-powered tanks was in the realm of science fiction, explorations of air-portable AFVs were more realistic. The US Army's self-propelled artillery, the M53 155mm self-propelled howitzer and the M55 8-inch self-propelled gun which had entered service in 1952, were based on the M48 tank chassis and at a weight of 44 tons were unsuitable for air transportation. In August 1955 eight designs for air portable self-propelled artillery were presented. This led, as we have seen, to the abandonment of the existing designs for the 105mm and 155mm self-propelled howitzers – the T195 and T196 – and the development of what would become the M108 and M109. In January the following year approval was given to develop a family of air portable, self-propelled heavy artillery of 175mm, 8-inch (203mm) and 155mm calibre.

The Pacific Car and Foundry Company of Renton, Washington, was awarded a contract to build six prototypes:



The short-barrelled M110 remained in service with Army National Guard units into the 1980s. This one is seen firing alongside an M114 155mm howitzer in September 1975.  
(US National Archives)

two T235 175mm guns, three T236 203mm guns and a single T145 155mm gun. They were to be powered by the Continental AOI-628-3 gasoline engine with an Allison XTG-410-2 transmission. In 1957 two further prototypes – a T119 wrecker and the T120 armoured recovery vehicles – were built. In 1959 the gasoline engine was replaced by a Detroit 8V71T diesel engine, bringing into line with other US military vehicles. These vehicles were now given as E1 suffix but at this stage the T145 project was dropped in favour of the M109.

On 9 March 1961 the T235E1 and T236E1 was accepted into service and standardised as the M107 175mm self-propelled gun and the M110 8-inch self-propelled howitzer. In June Pacific Car and Foundry received a limited production contract for both. The vehicles shared a common chassis with five large roadwheels on both sides with torsion bar suspension. It weighed 28 tons, meeting the need for air portability and could reach a maximum speed of 30mph on roads. The 450hp diesel engine had a hydraulic pump attached, designed to



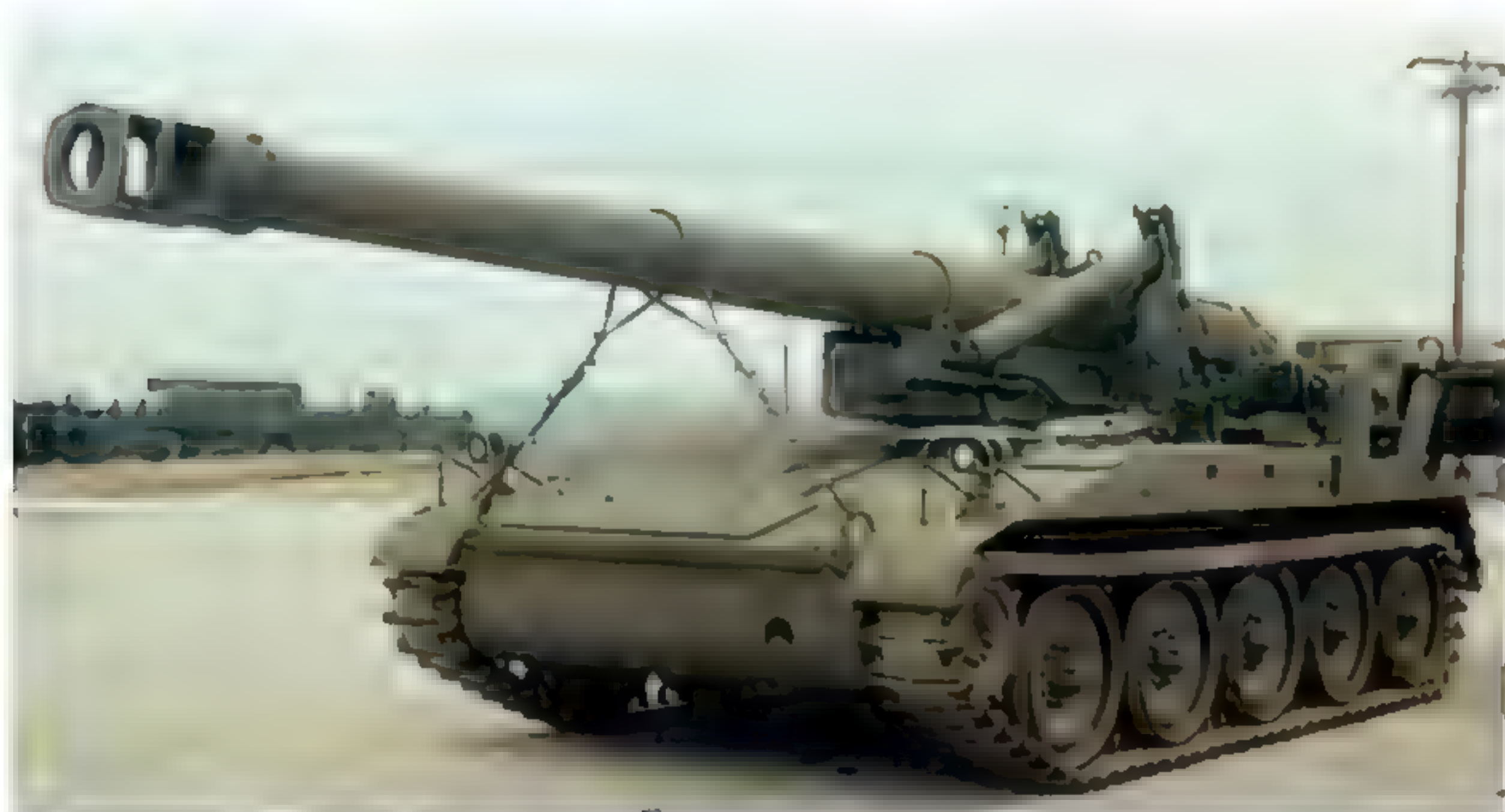


The M107 and M110 self-propelled howitzers were both the first and last of their kind. Although the last M107s were retired from USMC service in 1984, the M110s were used and later served in the First Gulf War with the British Army. The M110 was also used in the First Gulf War with the British Army. The M110 was also used in the First Gulf War with the British Army.



## The M110 Self-Propelled Howitzer

In October 1962 the US Army issued a production contract to the Food Machinery and Chemical Corporation (FMC) worth \$43 million to manufacture the M107 and M110. In June 1964 a second contract, worth \$27 million, was awarded to Bowen-McLaughlin-York (BMY) of York, Pennsylvania. The M110 carried the M1 8-inch howitzer. The M1 had entered service in 1940 and was mounted on the same M158 mount as the 175mm M113 gun of the M107. In 1962 the gun was redesignated as the M2A2 8-inch howitzer with the short M115 gun tube. It could fire a range of



The prominent double baffle muzzle brake fitted to the M201A1 gun tube of the M110A2 clearly identifies this final variant of the self-propelled 8-inch howitzer. (US National Archives)

→ traverse the gun mount and load ammunition, but also used to dig in the rear spade, although this could cause damage to the hydraulic spade cylinders. The chassis was largely unarmoured with only 13mm of aluminium armour providing protection against shell splinters and small arms fire for the driver. Kevlar armour panels for the fighting compartment were provided, but these were seldom fitted in the field.

ammunition, including M106 High Explosive (HE), Improved Conventional Munition (ICM) submunitions for both anti-armour and anti-personnel fires, and M650 HE Rocket Assist Projectile (RAP). The howitzer was also capable of firing chemical rounds and the W33 nuclear artillery shell. The M158 mount provided a 30-degree traverse left and right and could be elevated to 65 degrees. The gun required a thirteen-man crew, most of whom travelled in the M548 cargo carrier which accompanied the gun.

The original M110 had a range of 16,800m and a maximum rate of fire of three rounds every two minutes. The sustained rate of fire, however, was only one round every two minutes. This slow rate of fire was due to the hydraulically operated rammer used to handle the projectiles, which weighed more than 200lbs. The rate of fire could be increased by manually ramming the rounds, as this did not necessitate the barrel being lowered completely, but this was physically demanding on the crews.

The Vietnam War exposed the shortcomings of the M110's range and from 1969 efforts were made to fit the M201 gun tube, which was 8 ½ inches longer than the barrel on the original M110. This new tube had a higher twist, resulting in

Cold War Warriors: the length of the M113 gun tube is evident from this photo of a British Army M107 at the wash rack next to US Army M60A1 MBTs during the annual REFORGER 78 field training exercise. (US Army photo by SPC 5 Danny P. Finlay)







An M110A2 of 6-37 Field Artillery taking part in Exercise Team Spirit in South Korea in March 1983. (US National Archives)

a longer range, and was standardised as the M110A1 in March 1976. This necessitated a travel lock for the longer barrel and the guns in service were completed by the summer of 1978. The M110A1 was not a successful development, however, as the new gun tube generated a fearsome recoil, causing the range to be artificially limited, defeating the purpose of the change. To withstand the greater recoil forces, the M110A1 was initially fitted with ten lockout cylinders designed to lock the suspension in place. This was later reduced to eight.

To fully address these issues and to increase the range further, in 1978 the M201A1 gun tube with a double-baffle muzzle brake was introduced. This was standardised as the M110A2 and conversion of the M110A1 to the new standard began at Fort Riley, Kansas, in March 1979. M107s which were then in the process of being withdrawn from service were also converted to the new M110A2. The M110A2 could now consistently deliver fires up to range of some eighteen miles, vital to the developing doctrine of the US Army as it faced the armies of the Warsaw Pact in Europe. Production and conversion of the M110A2 continued into 1980 by which time there were 1,023 guns in service with the US military.

### The M107 Self-Propelled Gun

The M107 was basically the same vehicle as the M110, except the 8-inch howitzer was replaced by a 175mm M113 rifled gun, and indeed the two weapons were interchangeable on



A good rear view of an M110A2 showing the gun at full elevation. Note the prominent spade at the rear of the vehicle. (US National Archives)

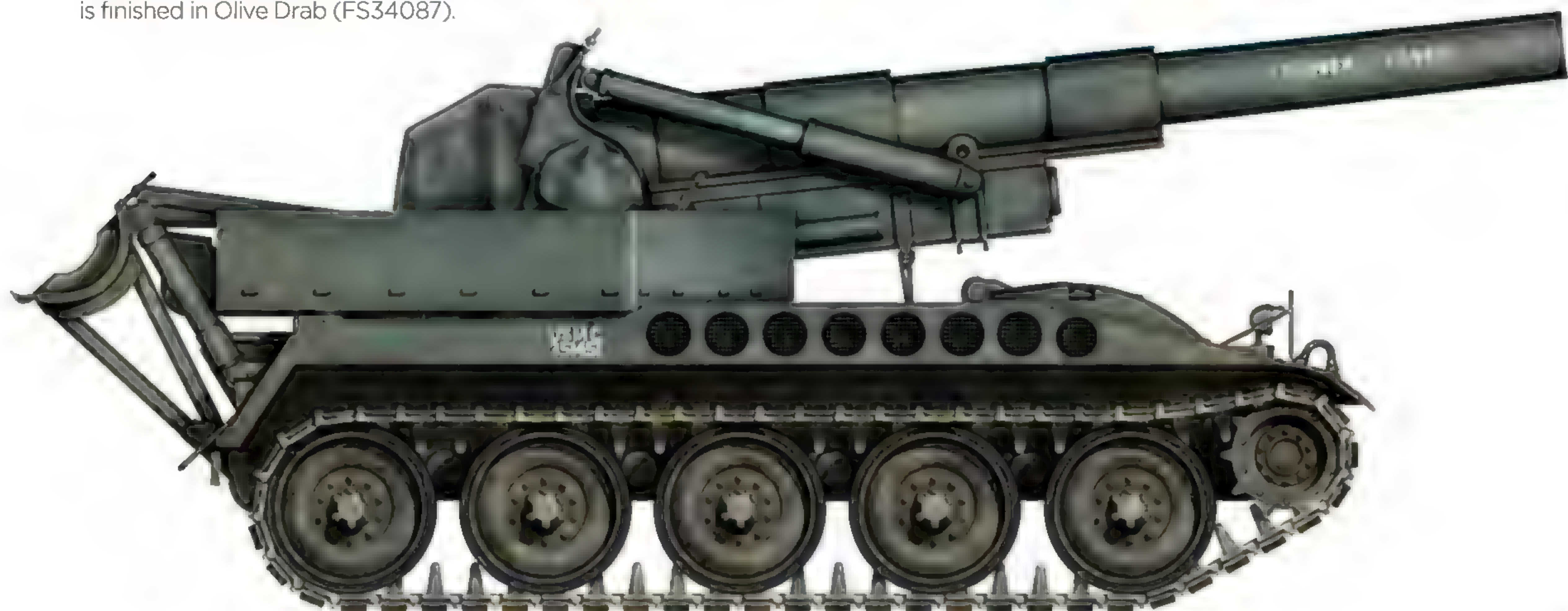
the same chassis. The M113 had a 60-calibre tube, making the M107 one of the most recognisable of NATO weapons systems during the Cold War. Mounted on the M107 chassis, the gun could elevate to +65 degrees, depress to -2 degrees, and traverse through 60 degrees (up to 30 degrees to either side). The rate of fire was slow, at one round per minute, and the projectiles had a range of up to 40 km. The tube life depended on the amount of charge and early barrels could only fire 300 rounds with the maximum zone 3 propellant, although this improved to between 700 to 1,200 rounds later in its service history. Two types of ammunition were developed for the M113 gun: the 66.6 kg M437 high-explosive round and a 79kg nuclear round with a 15kT yield, both fired using M86 propellant charges. The size and weight of the ammunition, as well as the propellant charges used to project it, restricted to two the number of rounds carried on the M107 itself, with →



**M110 203mm Self-Propelled Howitzer), USMC, 1st 8-inch Howitzer Battery (Self-Propelled), USMC 'Flower Power', Quang Tri, Vietnam, 1969.**

This M110 carries the armour kit seen on most USMC M110s in 1969-1970. This gun is finished in Olive Drab (FS34087).

1



**M110 203mm Self-Propelled Howitzer, 2nd Battalion, 320th Artillery Regiment, 101st Airborne Division, LZ Cindy (Tra Bong), Vietnam, 1969.**

This gun sports some colourful markings. It was common practice to write names on the barrel and 'Assassin' appears to have been a common one, appearing on both M109s and M110s. It is finished in Olive Drab (FS34087).

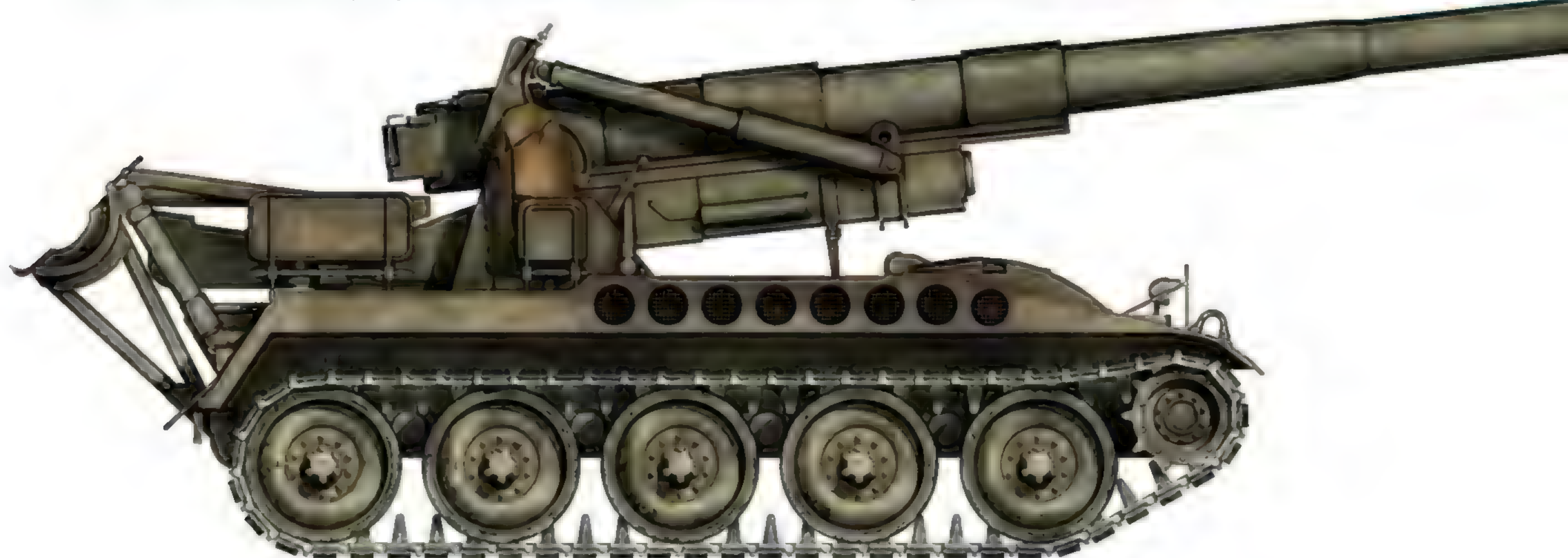
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**M107 175mm Self-Propelled Howitzer, 8th Battalion, 4th Artillery Regiment, 'The Rockpile', Vietnam, 1969.**

Army M110/M107 batteries frequently provided fire support to USMC units, such as to 3rd Marine Regiment from Elliot Fire Base, otherwise known as 'the Rockpile', just south of the Vietnamese Demilitarized Zone. The gun is finished in Olive Drab (FS34087).

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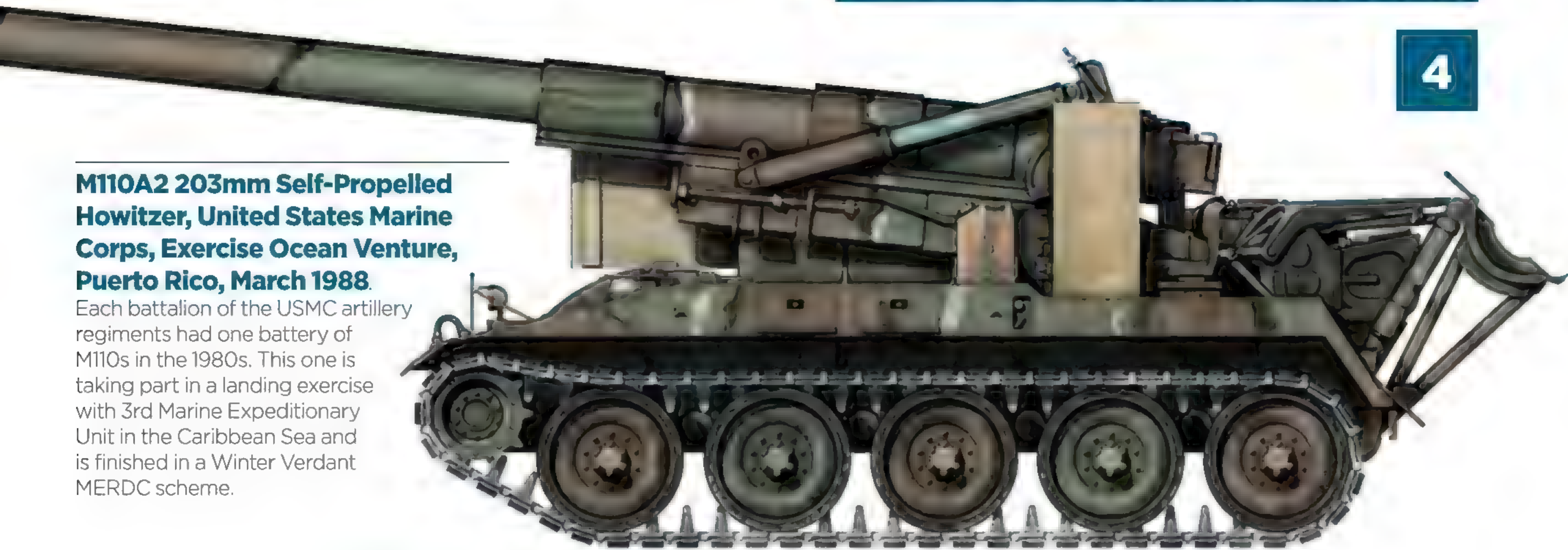




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**M110A2 203mm Self-Propelled Howitzer, United States Marine Corps, Exercise Ocean Venture, Puerto Rico, March 1988.**

Each battalion of the USMC artillery regiments had one battery of M110s in the 1980s. This one is taking part in a landing exercise with 3rd Marine Expeditionary Unit in the Caribbean Sea and is finished in a Winter Verdant MERDC scheme.



**M110A1 203mm Self-Propelled Howitzer, 2nd Battalion, 75th Field Artillery Group, unknown location, United States of America, January 1977.**

This gun is interesting because of the canvas cover over the fighting compartment and the black and yellow hazard stripes on the entrenching spade. The gun itself appears to be painted in overall Forest Green (FS34079).



5

(US National Archives)



**Forest Green**  
US Forest Green  
71.294



**Field Drab**  
US Field Drab  
71.139



**Sand**  
US Sand  
71.138



**Black**  
Black  
71.057



**Olive Drab**  
US Olive Drab  
71.043

Colour profiles by Sławomir Zajęczkowski

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**Vallejo**



An M107 of 'A' Battery, 2-94 Field Artillery fires in support of US Marines in 1967. (USMC photo)



→ additional ammunition carried by support vehicles. The gun could be fired by its five-man crew – section chief, driver, gunner, assistant gunner and number one cannoneer – while the gun was supported by additional eight cannoneers in the attached M548 Ammunition Carrier.

The M107 was manufactured at the same Detroit Arsenal plant as the M110, as well as at FMC in Philadelphia and Bowen-McLaughlin-York in Arlington, VA, between 1965 and May 1980. The M107, as we shall see, played an important and effective role in the Vietnam War, but this was its only combat service with the US Army and Marines. Like the M109 and M110, it was widely exported and served in several NATO armies. It also saw service with the Israel Defense Force and in the Iran-Iraq War. It was withdrawn from service in the early 1980s, with the guns being converted to M110A2.

## Self-Propelled Artillery during the Cold War 1963-1991

Artillery truly was supposed to be the 'King of the Battle' during the Cold War. The M110 and M107 had seen their combat debut in the Vietnam War (a service expertly described by MP Robinson in the May 2023 issue of MMI). However, the artillery systems were designed to face America's Cold War adversary, the Soviet Union. By the 1960s, facing each other across the central German plain, the armies of NATO and the Warsaw Pact had amassed a huge array of tube and rocket artillery able to deliver an apocalyptic amount of conventional, nuclear and chemical munitions. For most of the Cold War in Europe, the ascendancy in artillery lay with the Soviets. Artillery was central to Soviet doctrine, at a tactical, operational and strategic level, and it had proved its worth during World War II.

From the mid-1960s the Soviets began to rethink their military strategy, moving away from a reliance of battlefield

A Dutch gun crew prepare to fire the 175mm gun on the range in September 1968. (NIHM Collectie Nederlands Instituut voor Militaire Historie)



nuclear weapons and expanding their conventional forces. This continued into the 1980s: in 1965, the Soviet Army had 147 divisions; in 1974 167 and by 1987, more than 200 divisions (although many of these were not frontline, fully equipped formations). By the early 1960s about a third of Soviet combat forces were artillery units. In the 1970s and 80s the effectiveness and number of Soviet artillery systems grew, both conventional tube artillery and increasing numbers of rocket artillery. A greater proportion of the artillery was self-propelled, and artillery attack, not just support, was integral to the success of Soviet all-arms tactics.

In the late 1960s and 1970s the US Army in Europe (USAEUR) was ill equipped to meet this developing Soviet threat. It had at least abandoned a divisional structure designed for the envisaged nuclear battlefield of the 1950s and adopted a new structure of three brigades per division, each with three, occasionally four, battalions per brigade. Each division had a mixture of armoured and infantry battalions



The M107 served in various NATO armies in the 1960s, 70s and 80s at the height of the Cold War. Here a battery of Dutch M107s line up. (NIHM Collectie Nederlands Instituut voor Militaire Historie)



The Dutch M107s were never fired in anger, but the power of the 175mm gun, with its ability to hit targets deep behind enemy lines or even deliver a tactical nuclear warhead, is evident here. (NIHM Collectie Nederlands Instituut voor Militaire Historie)



that could mixed up as the operational situation demanded at the discretion of the divisional commander. There was a new emphasis on challenging the Warsaw Pact's conventional supremacy. This manifested itself in a re-evaluation of the importance of field training exercises. Although this had been evident since the early 1960s, it reached its apogee in the annual REFORGER (Return of Forces to Germany) exercises, first held in 1969.

To demonstrate the US's continuing commitment to NATO, an annual military exercise would take place that would involve the rapid transfer of at least a divisional-sized force from the United States to Germany and a field training exercise that committed these forces against other US and NATO forces. In wartime an entire third US corps, III (US) Corps, based at Fort Hood, Texas, and including two armoured divisions, a mechanised infantry division, and an Armored Cavalry regiment would be deployed to Germany, drawing tanks and other equipment from POMCUS (Prepositioning of Material Configured in Units Sets) depots in Belgium, the Netherlands, and West Germany.

The end of Vietnam War left the US Army disillusioned and broken. This was felt in USAEUR, where many junior and middle-ranking officers had lost confidence in their commanders. As well as the end of the Vietnam War and the subsequent end of the draft, other factors occasioned a rethink of US Army doctrine. The lessons of the 1973 Yom Kippur War and changes in US Army's High Command led to the introduction of a rigorous training programme for all levels of the new all-volunteer army and efforts to improve the effectiveness of small units. The early 'seventies also witnessed a heated argument over a new operational doctrine for the US Army. In July 1976 a new Army operational manual, FM-1005, was published which enshrined the notion of Active Defence and aligned

the US Army's doctrine with that of its most important NATO partner, West Germany. In Europe, the US Army would use its skill to conduct a forward defence, based on manoeuvre and the concentrated application of force to fight and win against the Soviets. Artillery, designed to both destroy enemy formations in the attack and provide effective counter-battery fire was crucial to this. By the late 1970s the emphasis was beginning to shift to defeating the Warsaw Pact in battle. Armoured units, with their organic self-propelled artillery support, were deployed according to the notion of 'Forward Defense' close to the Inner German Border and designed to meet and destroy the massed Soviet armour as it poured through the Fulda Gap.

In the late 'seventies and early 'eighties, however, it was clear US operational plans in the event of a major Soviet invasion were insufficient. They were simply not enough reserves, and not enough tanks, to defeat the second and third echelons and eventually resort would have to be made to nuclear weapons. In 1982 the manual was revised away from direct firepower to one of offensive manoeuvre and surprise, designed to put the invader on the wrong foot and inflict a series of defeats in the so-called 'Deep Battle' doctrine. An integral part of this was →



The Dutch received their first M107 in 1965. Again, the length of the M113 gun is very clear. (NIHM Collectie Nederlands Instituut voor Militaire Historie)



→ the use of airpower, both strategic and tactical, to attack the Soviet second and third echelons and degrade their ability to fight and win against the armoured and mechanised infantry formations of Seventh Army. Another important component of this emerging doctrine was new equipment: the M1 Abrams MBT, the Bradley Fighting Vehicle and the M270 Multiple Launch Rocket System (MLRS). This new doctrine of the 'Airland Battle' envisaged a battle that would be fought and won in West Germany, as well as in East Germany and other central and Eastern European states and across the supply lines of the invading Soviet forces.

The organisation of the USAEUR reflected this change and the adaptation of its artillery to both a defensive and offensive role. The artillery in the two principal formations – V and VII US Corps – complemented the airpower available to US commanders to both engage and destroy attacking Warsaw Pact formations and, crucially, to strike the enemy deep behind enemy lines and across the Inner German Border in the so-called Follow-On Forces Attack (FOFA) concept. By 1989 the M109A2/A3 155mm SPH and M110A2 were available in large numbers

throughout the armoured and mechanised divisions and in the corps-level artillery units. V US Corps, with its headquarters in Frankfurt, had 72 M109s and nine M270 MLRS in 3rd Armored Division; a further 72 M109s and nine M270s in 8th Infantry Division (Mechanized); the same inventory held in POMCUS depots for 4th Infantry Division (Mechanized), based at Fort Carson, CO, in peacetime; a further 24 M109s each held in POMCUS depots and assigned to 194th Armored Brigade and 197th Infantry Brigade; and 24 M109s in 11th Armored Cavalry covering the Fulda Gap. In addition to these divisional



**In 1983 the M107 was withdrawn from US service. Here General William R. Etnyre, C-in-C of 7th Marine Amphibious Brigade, fires the final round from an M107 of 4-11 Marines, 1st Marine Division, USMC, at Twentynine Palms, CA.** (USMC Corps photo by Sgt. C.A. Luedke)

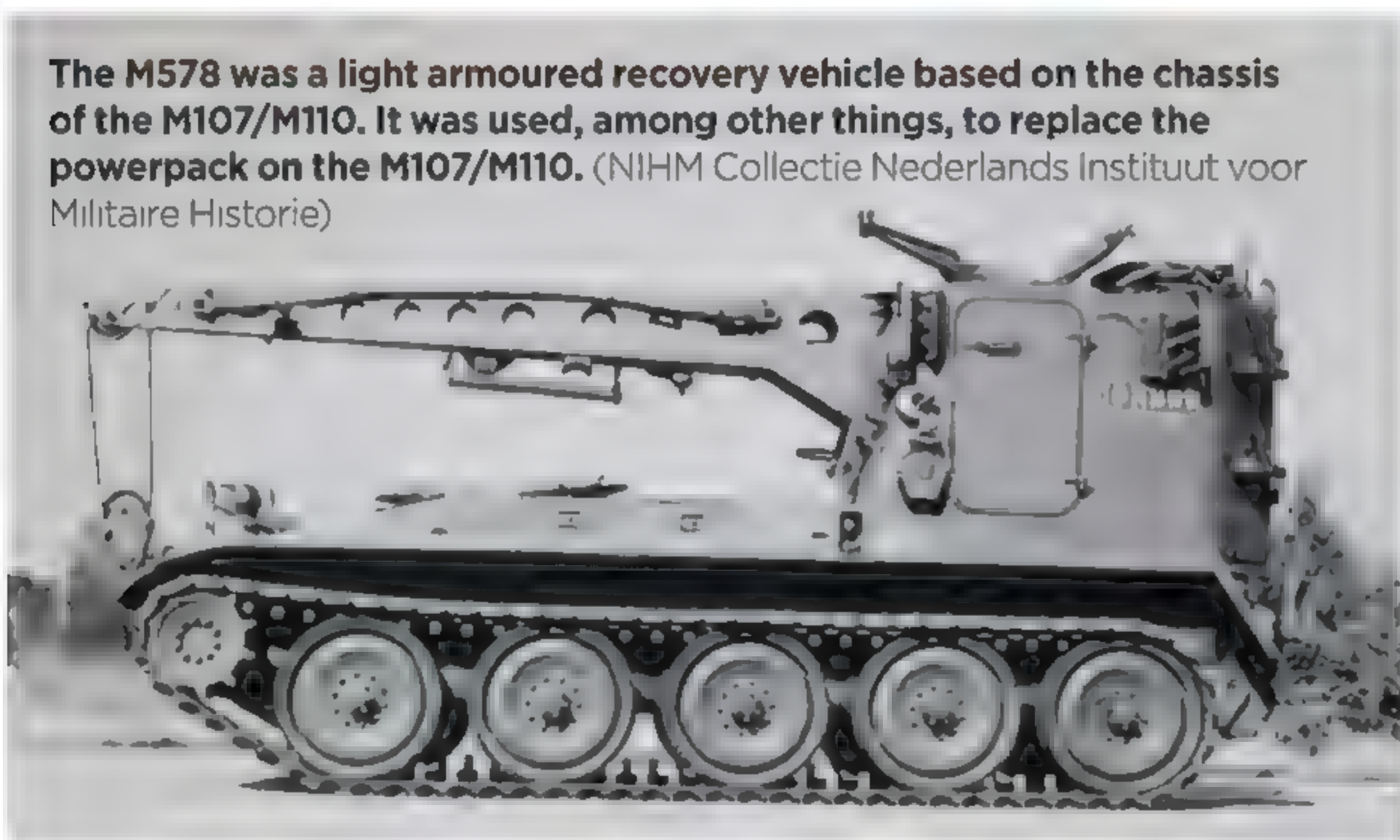
**The M107 entered Israeli service in the late 1960s and saw action during the 1973 Yom Kippur War. In Israeli service the M107 was known as the Romach or 'Spear'.** (Glen Phelan)







The threat of Nuclear, Chemical and Biological (NBC) attack was a constant feature of training during the Cold War. Here a Dutch M110 crew prepare their howitzer wearing full NBC protection. (NIHM Collectie Nederlands Instituut voor Militaire Historie)



The M578 was a light armoured recovery vehicle based on the chassis of the M107/M110. It was used, among other things, to replace the powerpack on the M107/M110. (NIHM Collectie Nederlands Instituut voor Militaire Historie)

and brigade-level artillery assets, V US Corps had two Field Artillery Brigades, 41st and 42nd, the former equipped with 28 M110A2, 24 M109 and 33 M270 MLRS, while the latter had 72 M110A2 and 33 M270. In total the Corps could deploy 312 M109s, 100 M110A2 and 93 M270 in wartime.

VII US Corps, its headquarters based in Stuttgart, had 72 M109s and nine M270 each with 1st Armored Division and 3rd Infantry Division (Mechanized); the same with 1st Infantry Division (Mechanized), most of it in POMCUS depots; 24



Camouflage and protecting artillery assets from aerial observation and attack and counter-battery fire was a key part of an artillery man's training during the Cold War. Here an M110 is camouflaged while in exercise in Germany in May 1973. (US National Archives)

M109s with 2nd Armored Cavalry; and 96 M109s, 144 M110A2 and 27 M270 with three Corps Field Artillery Brigades, 17th, 72nd and 210th, as well as eighteen MGM-52 Lance missile systems. Complementing these US forces in CENTAG were 324 M109A3G and 114 M110A2, as well as towed guns, of the two German Corps and 51 M109s of 1st Canadian Division. The commander of the Northern Army Group (NORTHAG), the four frontline corps – one British, one Dutch, one Belgian and one German – with the US III Corps, based in the US, in reserve, could dispose of a similar amount of artillery, much of it self-

propelled, with M109s being deployed in artillery regiments at divisional level, and each corps having its own M110A2 and, by the end of the Cold War, M270 MLRS batteries organised separate three artillery brigades. I Br Corps still used the M107 in two Heavy Regiments, Royal Artillery, each assigned to an Armoured Division, while the third Heavy Regiment, equipped with M110 was in the process of re-equipping with M270 in 1989. The 105mm Abbot SPG still equipped Field Artillery Regiments of the Royal Horse Artillery as the Cold War in Europe came an end.

US artillery was able to successfully adapt both technologically and tactically to the changing demands of a possible war in Europe against the Soviet Union and their allies. Between the early 1960s and the late 1980s, NATO gradually abandoned its reliance on nuclear retaliation to deter a Soviet attack and developed doctrine that imagined stopping and defeating the enemy by conventional means. Tube artillery played a pivotal role in this, and it was never totally supplanted by MLRS for long-range fires, nor by Anti-Tank Guided Missiles (ATGMs) for blunting enemy armoured thrusts.

## Gulf War Swansong

As the Cold War in Europe drew to its conclusion, the US Army and Marine Corps found themselves engaged in a very different theatre but one in which the role of self-propelled artillery within a combined arms force came to the fore. On 2 August 1990 Iraqi forces invaded Kuwait. Within 48 hours the Emir had fled, the Kuwaiti armed forces had either surrendered or escaped to Saudi Arabia, and a coalition of nations, led by the United States, was organising to demand the Iraqis withdraw from what Saddam Hussein would soon declare 'the nineteenth province of Iraq'. The invasion had been planned long in advance and the warning signs largely ignored by the Kuwaitis and their allies. At the time Iraq had the fourth largest army in the world and their soldiers had recent combat experience in the long and bloody Iran-Iraq War, which had ended just two years previously.

In the aftermath of the Iraqi invasion of Kuwait the US quickly reinforced Saudi Arabia with armour and men. By the time the 15 January 1991 deadline for Iraqi forces to leave Kuwait had





→ passed, the US had a strengthened VII Corps in theatre. As well as tanks and Bradley Fighting Vehicles, it had 568 tube artillery pieces (including M109s and M110A2s) and 132 MLRS under its command. In addition, the US had also deployed the 2nd and 5th Marine Expeditionary Force and the 5th Marine Expeditionary Brigade to the Gulf with their own batteries of M109s and M110s.

Self-propelled artillery played a vital role in the ground war, which began at 04:00 on 24 February 1991 and ended one hundred hours later with the total defeat of Iraqi forces. A good example of the flexibility and effectiveness of the American self-propelled artillery is the experience of 5-11 Marines of 1st Marine Division, a general support artillery battalion with one battery each of M109A3 and M110A2 howitzers and two batteries of towed M198 155mm howitzers. Prior to the commencement of the ground campaign, the I Marine Expeditionary Force (I MEF) was given the mission to deceive and disrupt Iraqi forces operating in defensive belts along the south-western border between Kuwait and Saudi Arabia. A mission analysis was conducted, and it was decided that the artillery raid was the best way to accomplish the mission. Organising the artillery raid was a major challenge because it is normally conducted by air assault units, and the Marine gunners had not practised this kind of mission in peacetime. The General Support (GS) artillery battalion was the logical choice, however, because it was more flexible than the division's Direct Support (DS) battalions that had to remain in a position to provide fires for their supported manoeuvre task forces.

F/A-18, AV-8B, and A-6E strike aircraft were on call to provide support if the raid force ran into trouble and to attack certain targets in coordination with the artillery when it was appropriate. The raid force needed heavy equipment transport (HET) trucks to move the M109A3 and M110A1 howitzers to the final raid assembly area near Al Qaraah. The Marines used the hand-held Rockwell global positioning system (GPS), capable of providing 10m location accuracy by tracking up to sixteen navigational satellites, to find their position in the darkness. On 18 January 1991, the raid force moved from their battalion position 30km south of Safaniya to the final raid assembly area



**An M110A2 of 5-5 Marines, 1st Marine Division, during Operation Desert Shield in Saudi Arabia in November 1990.** (US National Archives)

near Al Qaraah, approximately 25km south of the border with Kuwait. Final coordination was made with Bravo Company, Task Force Shepherd, and the raid force waited for its first mission. This came five days later against an Iraqi infantry brigade command post near Qalamat Al Manaqish. This was accomplished by a M109A3 battery and one of M198s (Battery Q), while further fire missions followed against an Iraqi Police Post and a Signals Intelligence Site. The final mission involved targeting two Iraqi artillery batteries.

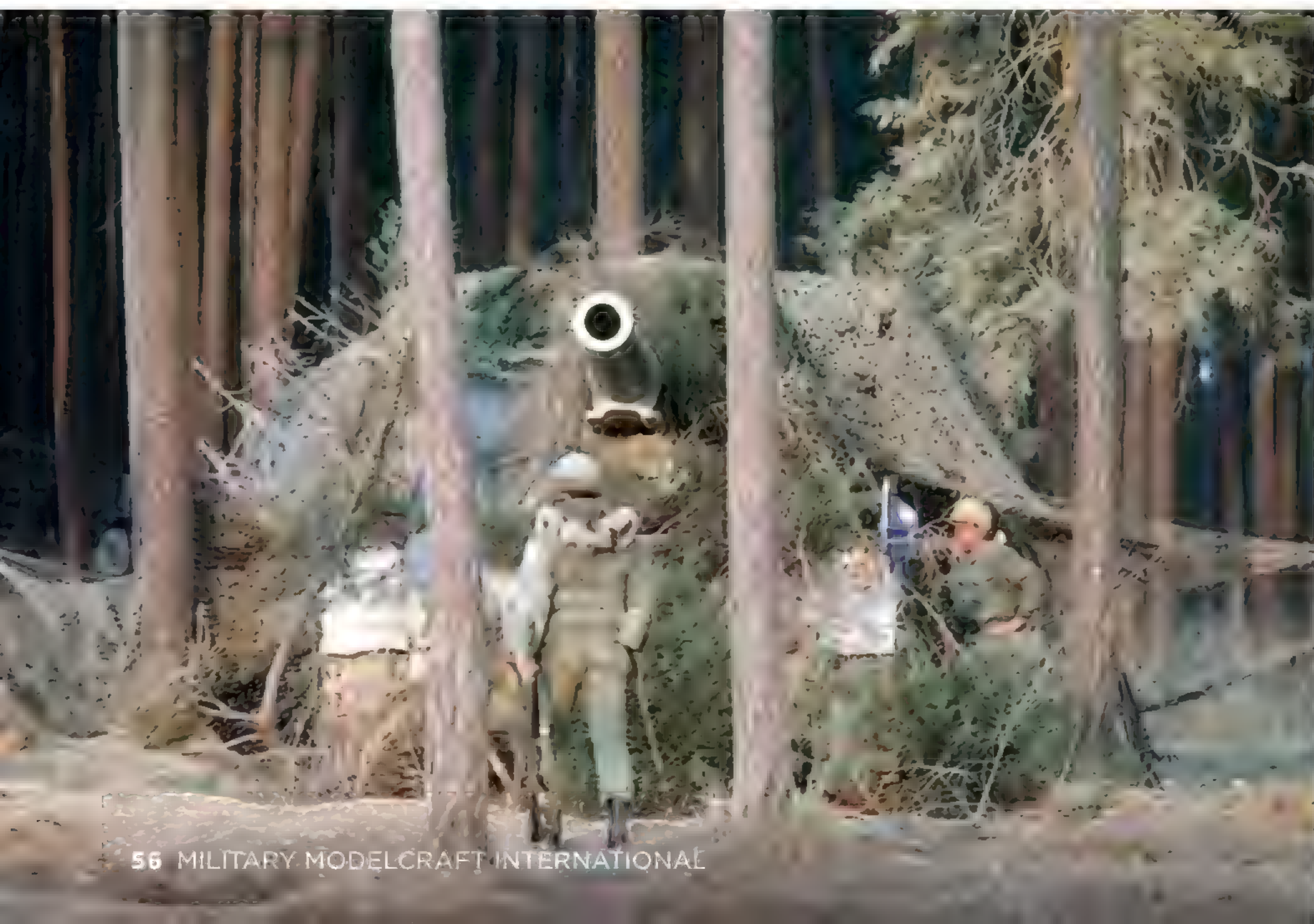
On 10 February 5-11 Marines were recalled to their battalion assembly areas. The raids accomplished their overall mission of demoralising the Iraqis and deceiving the enemy as to the location of the coming ground attack. They demonstrated the effectiveness of both towed and self-propelled artillery working together as part of a single battalion to support combined arms operations.

## Conclusion

The M110A2 remained in service with the US Army until the mid-1990s. It continued to serve with Army National Guard units until 1996. The M110A2 was replaced by the M270 Multiple Launch Rocket System, which first entered service in 1983. The concept of long-range artillery was central to US doctrine throughout the Cold War and demonstrated its value in other

theatres during the Vietnam. Traditional tube artillery, of which the M110 and M107 were the culmination of American developments that stretched back to the end of World War I, has now, of course, given way to ballistic missile-firing artillery. In its latest guise, of course, this is the M142 HIMARS, with precision fires delivered more accurately and with even more deadly effect by munitions such as the MGM-140 Army Tactical Missile System (ATACMS). END

**M110A2 of 1-40 Field Artillery, part of the US 3rd Armored Division, take up firing positions during Exercise Central Guardian in January 1985.** (US National Archives)





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KIT: AFV CLUB  
SCALE: 1/35

# THE BUNDESWEHR'S BIG ONE

**Marcus Jacob** builds AFV Club's M110 as an early German Bundeswehr version.



Every modeller knows the feeling: a reference photo catches your eye, and you think to yourself: "Perfect reference, I'll build that!" That's how I felt when I saw this photograph of an early Bundeswehr M110 (photo 1). The American-made M110 self-propelled howitzer is familiar many modellers from its service in the Vietnam War. However, it was also used in the divisional artillery of the West German Bundeswehr. In 1964, the Bundeswehr procured both the M107 self-propelled gun and the M110 self-propelled howitzer. Both were used in the field artillery battalions of the Bundeswehr's new armoured divisions. From 1985, all M110s were converted to the M110A2 version with the long 203mm L/37 barrel and a new muzzle brake from Rheinmetall, as well as a weather protection superstructure. The M110s were decommissioned from the Bundeswehr in 1993.

Italeri released several versions of the M110, beginning in 1989, but in 2022 AFV Club brought out their own kit. The first pictures of it from AFV Club showed this was an extremely detailed and complex kit. The inclusion of photoetch and a turned aluminium barrel were enough to convince me I needed to build the gun featured in my reference photo.

## Assembly

After spending some time researching the West German M110s, I started with the running gear and the hull. I began by

assembling the multi-part wheels, with poly caps and separate tyres (2). Next, I tackled the hydraulics and the gear rims for the M110 in the lower hull (3). This was followed by the finely detailed driver's compartment (4). As this would later be largely hidden within the hull, it had to be painted and detailed with acrylic paints and weathered at this point in the construction process (5). It was then installed in the lower hull.

For the tracks, I decided to replace the

kit vinyl tracks with AFV Club's individual-link T132E1 tracks (ref. AF35332), which was used on the early Bundeswehr M110, before the installation of the later Diehl 828G tracks. After cutting the individual track links from the sprues, they were cleaned up, pinned together, and the track pads glued on (6). I then continued the





2



3



4



5



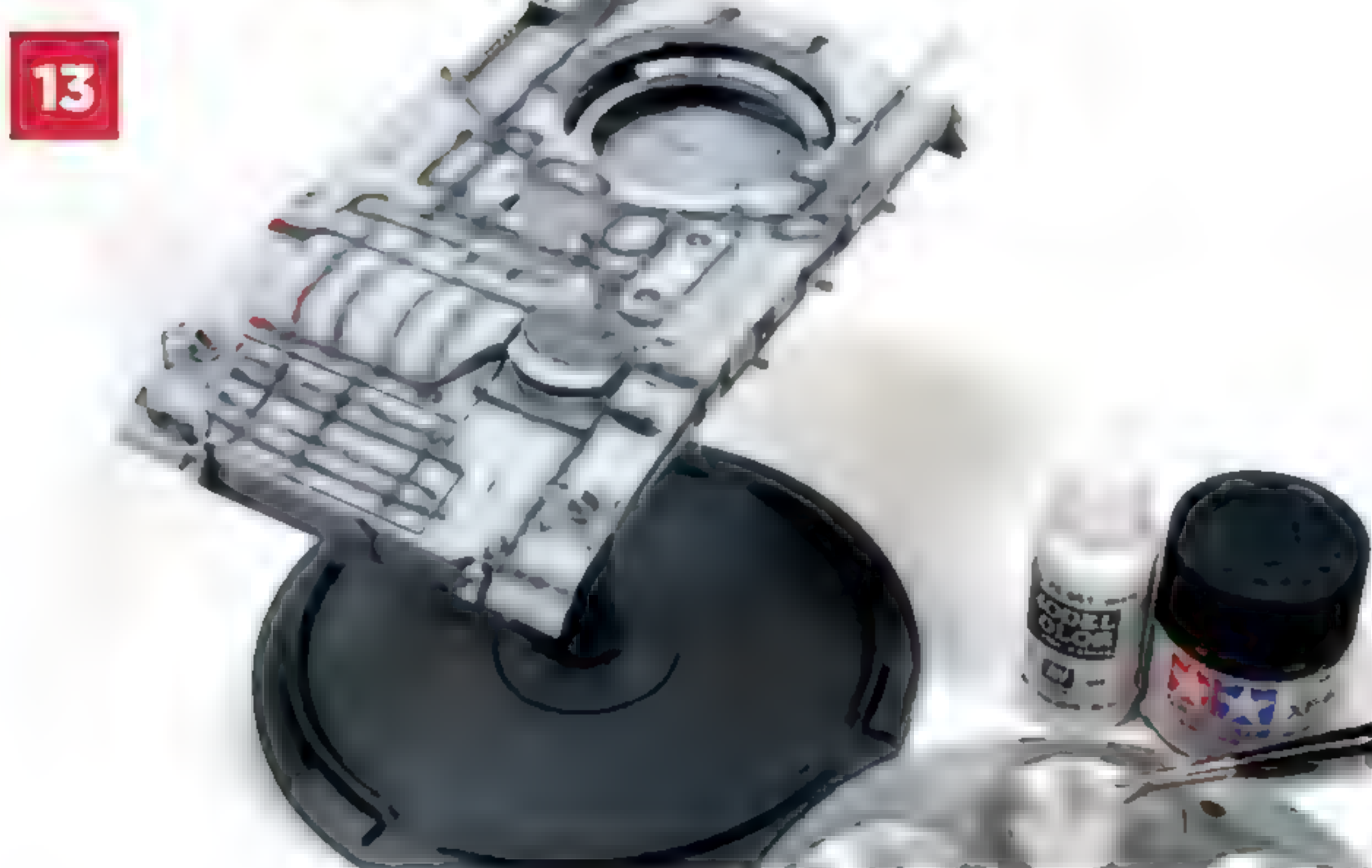
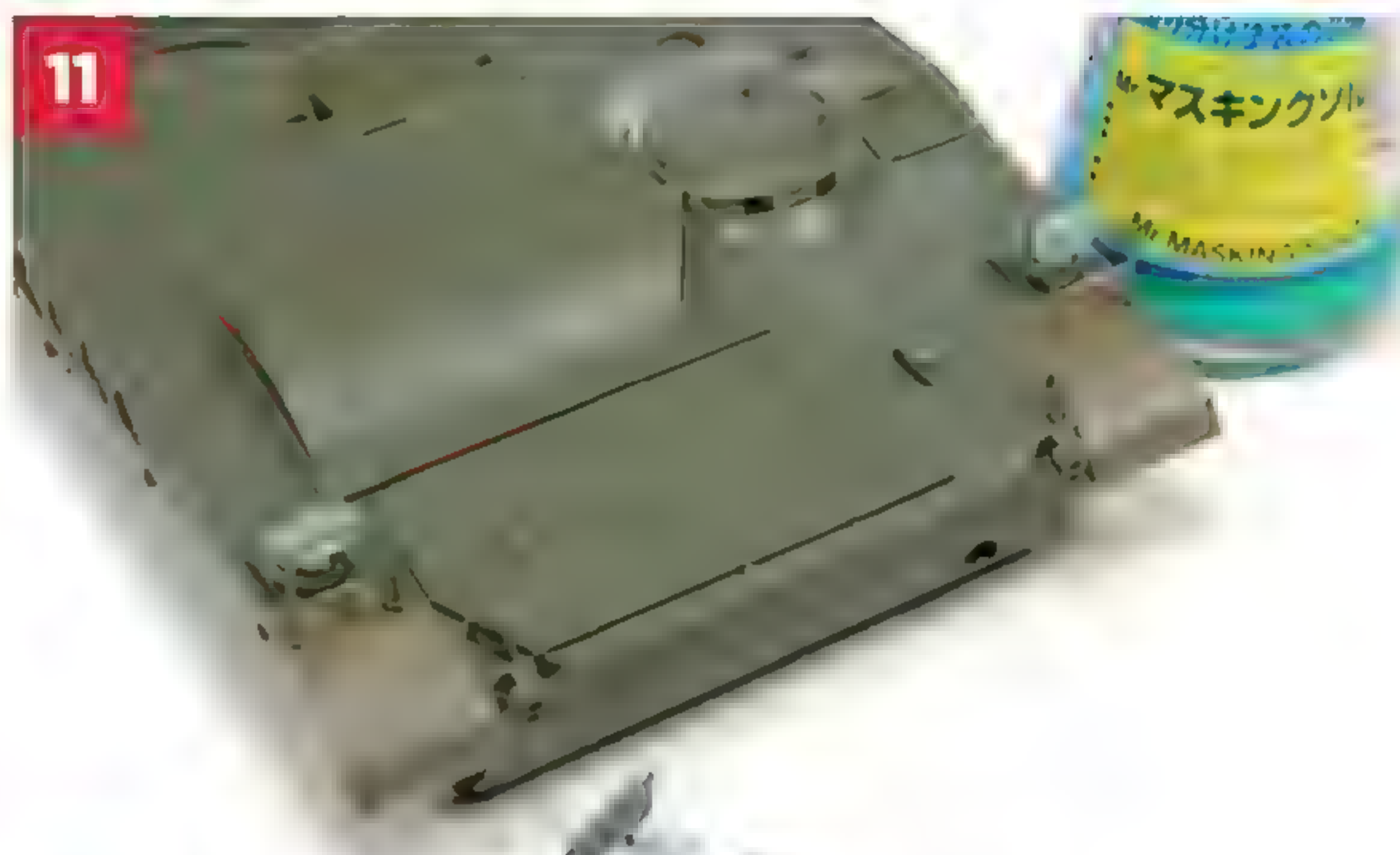
M110 assembly with the rear support shield, which consists of numerous individual parts (7). This is a complex sub-assembly, and I had to refer constantly to my references to ensure I did it correctly. The kit-supplied tow rope was replaced with 0.7 mm copper wire from Karaya. The towing eyes were drilled out and the cable inserted (8).

The construction of the hull was straightforward, but the gun mount presented some challenges. Numerous small parts, such as the hydraulic lines, had to be installed individually, which required considerable care and patience (9). In addition to the small parts, the sometimes-confusing assembly instructions also led to some frustration. It should be noted here that this kit is not for beginners! I made a few improvements with my own 3D-printed parts for the German version and used two-part epoxy putty for making the seat cushions on the gun carriage (10). I then put the chassis, hull, gun carriage and support shield assemblies together for the first time to get a picture of the complete howitzer. I was

delighted with the result; it wasn't an easy build but was well worth the effort. →







## → Painting

Before I could begin painting the M110, some preliminary work was necessary. AFV Club, for example, provide clear plastic headlights. These therefore had to be masked beforehand with Liquid Mask (11). The sub-assemblies and parts were then fixed onto supports and sprayed with AMMO's Titan's Grey Primer (12). This was followed by a pre-shade using Tamiya Flat Black (XF-1) and a highlight with Vallejo White (71.001) (13). The base was then applied using very dilute Revell Gelboliv (42). For me, this is the

closest match to the RAL 6014 that Bundeswehr AFVs were painted before the introduction of the three-colour NATO camouflage. The individual link tracks were pre-painted dark grey and then weathered by the application of washes and spatters using the excellent LifeColor Rust Set (LP02) (14). After painting the details with acrylic paints and a coat of gloss varnish, my Bundeswehr decals, which I drew on the computer, were applied. A coat of matt varnish helped them blend in properly (15).





14



15



16



17



18



19





20



21



22



23

to have the crew digitally created especially for me according to my specifications. Printed out on a 3D printer and adapted to the model, the painting could begin. The little men were painted in acrylics, and shadows and highlights added by successive layers of glazing in different shades of green and olive (21).

The base was created from a piece of insulation foam on which the surface was prepared accordingly (22). The concrete barriers were created in CAD and then 3D printed. The base depicts the entrance to a firing position on a West German training ground. After priming the base, the concrete road was painted different shades of grey using an airbrush. Signs, grass and some traces of snow, as well as the marks of the tracks on the asphalt rounded off the base's appearance (23).

## → Weathering

I made the decision at this point to go 'back to basics', and weather the M110 entirely with oil paints. First, I applied a pin wash from Raw Umber and White Spirit (16). Once this had dried, I turned my attention to the upper hull. I began to build up the dirt and mud effects with different oil paints in earthy tones (17). Oil paints are perfect for this as they are easy to blend. You just need to remember to work in small sections at a time and avoid the temptation to rush. Slow and steady wins this race! The tyres and the rubber track pads can also be weathered effectively by applying and blending oil paints (18).

Larger accumulations of dirt were applied to the running gear and hull area with acrylic pastes and then blended with enamel and oil paints (19). I also applied some strands of Sea Grass to the 'mud' accumulated on the lower hull. I then went back over the hull, emphasising the raised details with a further pinwash and a lightened shade of the base colour (20). All that remained was to put together the sub-assemblies, and the M110 was complete.


## Base and Figures

I wanted to make a suitable base for the M110 and add the crew apparent in the reference photo. Unfortunately, commercially available Cold War Bundeswehr figures in 1/35 scale are few and far between. After consultation with Germania Figuren, I was able

## Conclusion

AFV Club's kit of the M110 is an extremely detailed kit and is incomparable in terms of accuracy with the earlier Italeri effort. The kit is very well designed, with perfect fit making for a relatively straightforward build. However, the numerous small parts included, and the occasionally confusing assembly instructions meant that the project was at times a frustrating experience. However, the result was well worth the effort, and I

was delighted to have this piece of Bundeswehr history in miniature.

I hope AFV Club will consider a German long-tube version of this kit - an M110 A2, preferably with weather protection - in addition to this and the already available M107. 



## AVAILABILITY

AFV Club 1/35 U.S. Army M110 Howitzer 8-inch (203mm) M110 Self Propelled Howitzer (ref. AF35110) is available from all good model shops.







**NEW**

**1:48**

# North American F-86F Sabre A08111



One of the most important aircraft of the early jet era, the North American F-86 Sabre was in many ways a jet powered version of the company's hugely successful P-51D Mustang from WWII and an aircraft which made full use of captured German aerodynamic research material. Featuring a distinctive 35-degree wing sweep, the Sabre also incorporated three nose mounted .50 calibre machine guns positioned on either side of the

aircraft's nose, with this jet powered gunslinger sharing many design philosophies with its famous piston powered predecessor.

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**NORTH AMERICAN F-86F-30 SABRE™**  
"Arctic Gladiators" aerobatic team, 720th Fighter-Bomber Squadron, United States Air Force, Eielson Air Force Base, Alaska, 1955.



**NORTH AMERICAN F-86F-25 SABRE™**  
514th Fighter-Bomber Squadron, Royal Air Force Manston, Kent, England, 1954.

Length 239mm Width 239mm Pieces 166

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**The excitement is building**







# EYES AND EARS

**Ivan Momcha Momcilovic** builds a Wehrmacht armoured observation tank.

The Panzerbeobachtungswagen III, which translates to 'armoured observation vehicle', was one of the many variants of the Pz.Kpfw. III medium tank. Although a relatively simple conversion, it was one of the most specialised vehicles in this tank family. Under the official ordnance designation Sd.Kfz.143, it was designed for the artillery observers assigned to self-propelled artillery batteries to better record the fall of shot and adjust fire effectively. It was initially based on the Pz.Kpfw. V Panther (the Pz.Beob.Wg. V). However, with production of the Panther being delayed, the decision was made to use the surviving older Pz.Kpfw. III chassis for the conversion.

The Pz.Beob.Wg. III project commenced in late 1942, after the great successes of the German offensives had come to an end. The German army needed observation vehicles for the Hummel and Wespe mobile artillery units, and these had to be within visual range of the target, in order to be able to

help correct the artillery fire. Furthermore, these vehicles needed to survive on the frontline and to be able to communicate with unit commanders and other armoured vehicles. Clearly, using an existing tank as the basis was the most sensible solution; it would have good off-road capability, strong armour, and would already be fitted with a radio.

## THE MODEL: STEP-BY-STEP

1



The starting point for the project was one of Dragon's earlier Panzer III kits that I had acquired several years ago. No doubt the newly tooled versions of the kit are better detailed, but I decided to settle for this version, and rely on a few aftermarket upgrades for any improvements.

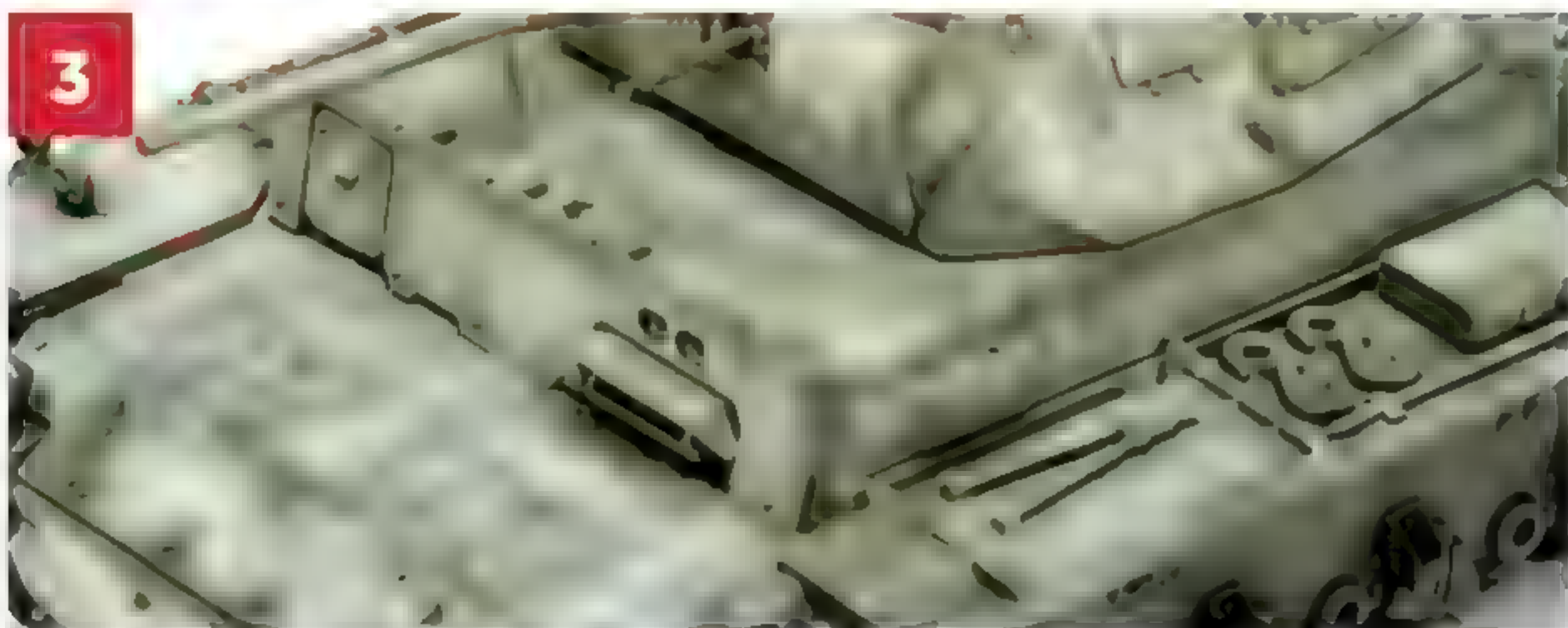
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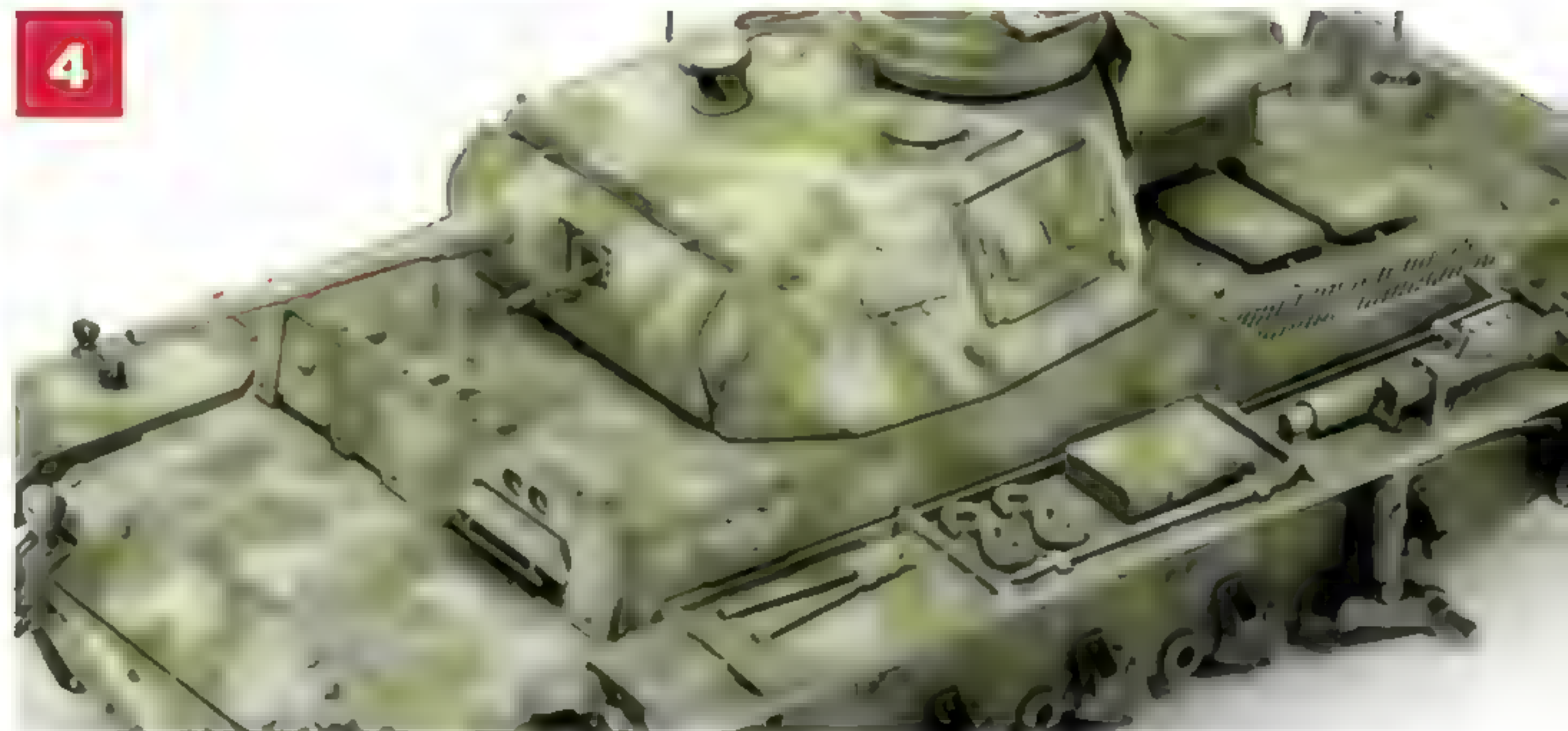
With basic assembly complete, I treated the model to a coat of Vallejo Black Primer. This was applied directly from the can, which meant that I needed to work outdoors, as the fumes are unpleasant.



*The Pz.Beob.Wg. III project commenced in late 1942, after the great successes of the German offensives had come to an end*



3 Having allowed the primer to fully dry, I applied the base colour, AMMO's Dunkelgelb Base (A.MIG-902). I followed with a random coverage of Dunkelgelb High Light (A.MIG-904), which, as its name suggests, is a lightened version of the base colour. Rather than applying this second colour with uniform density, I began with a series of small spots, and connected these with soft edge passes to give the impression of slightly worn paintwork. I made the effect heavier in upper areas to mimic the effect of overhead lighting and less so in lower areas to emphasise shadow.



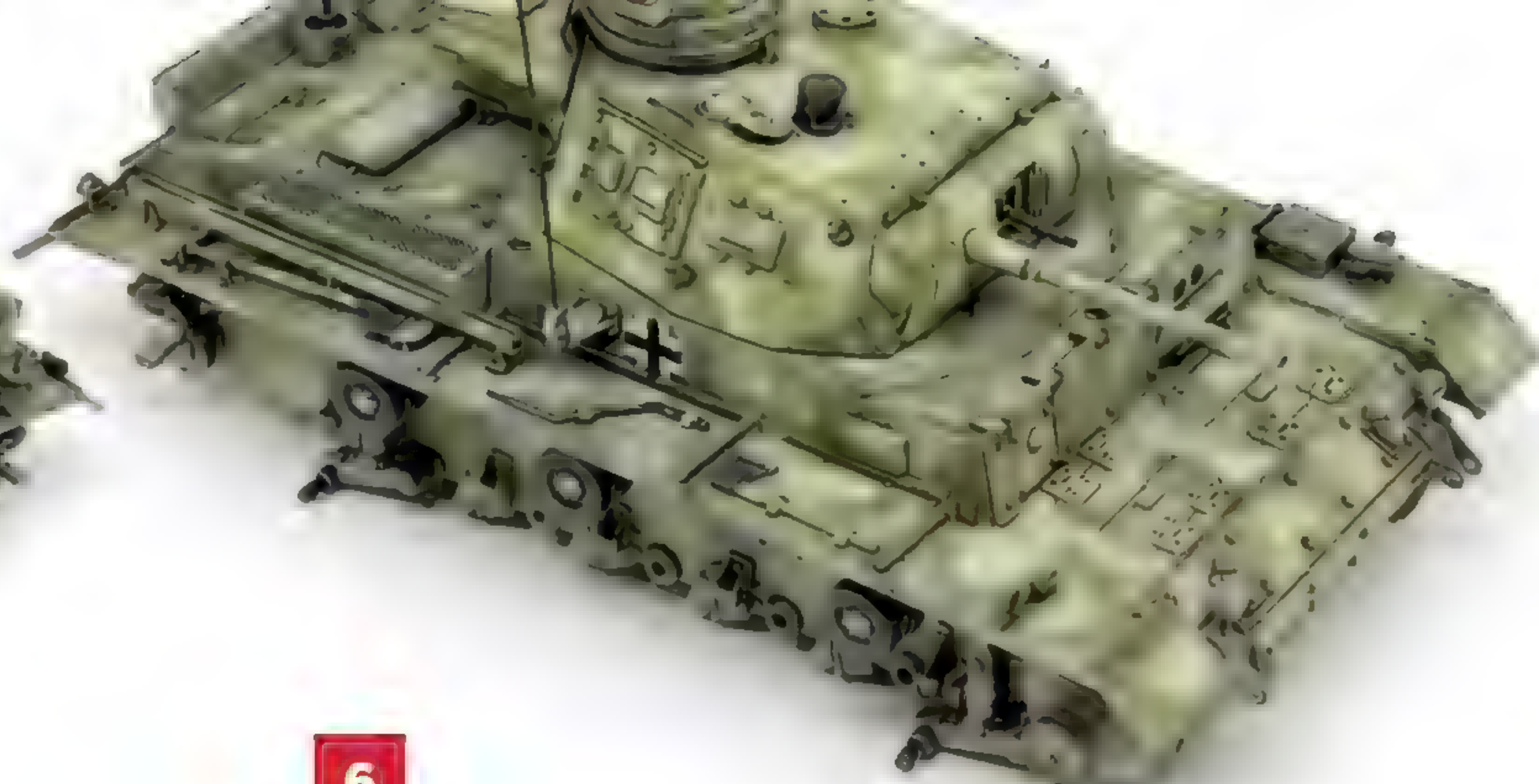
4 The next step was to apply the camouflage pattern, here using Olivgrün Opt.2 (A.MIG-002). Satisfied with the overall appearance, I used Resdagrün (A.MIG-003) to highlight the inner portions of the Olivgrün pattern. Yes, somewhat overstated at this stage, but subsequent weathering would create a more natural appearance. →





5

→ Again, allowing the paint to dry, I applied an overall coat of satin varnish in preparation for the application of decals and oil-based weathering products. I randomly placed spots of colour around the hull and turret (darker ones in areas where dirt would naturally accumulate) and used a fine-pointed brush moistened with thinner to blend these, in effect, creating a filter for the two-colour camouflage scheme.



6

After 24-hours drying time, I applied a series of pin washes, both to emphasise shadow in recesses, and highlight raised details. At this point, I also picked out items such as stowed tools and equipment in their respective colours.



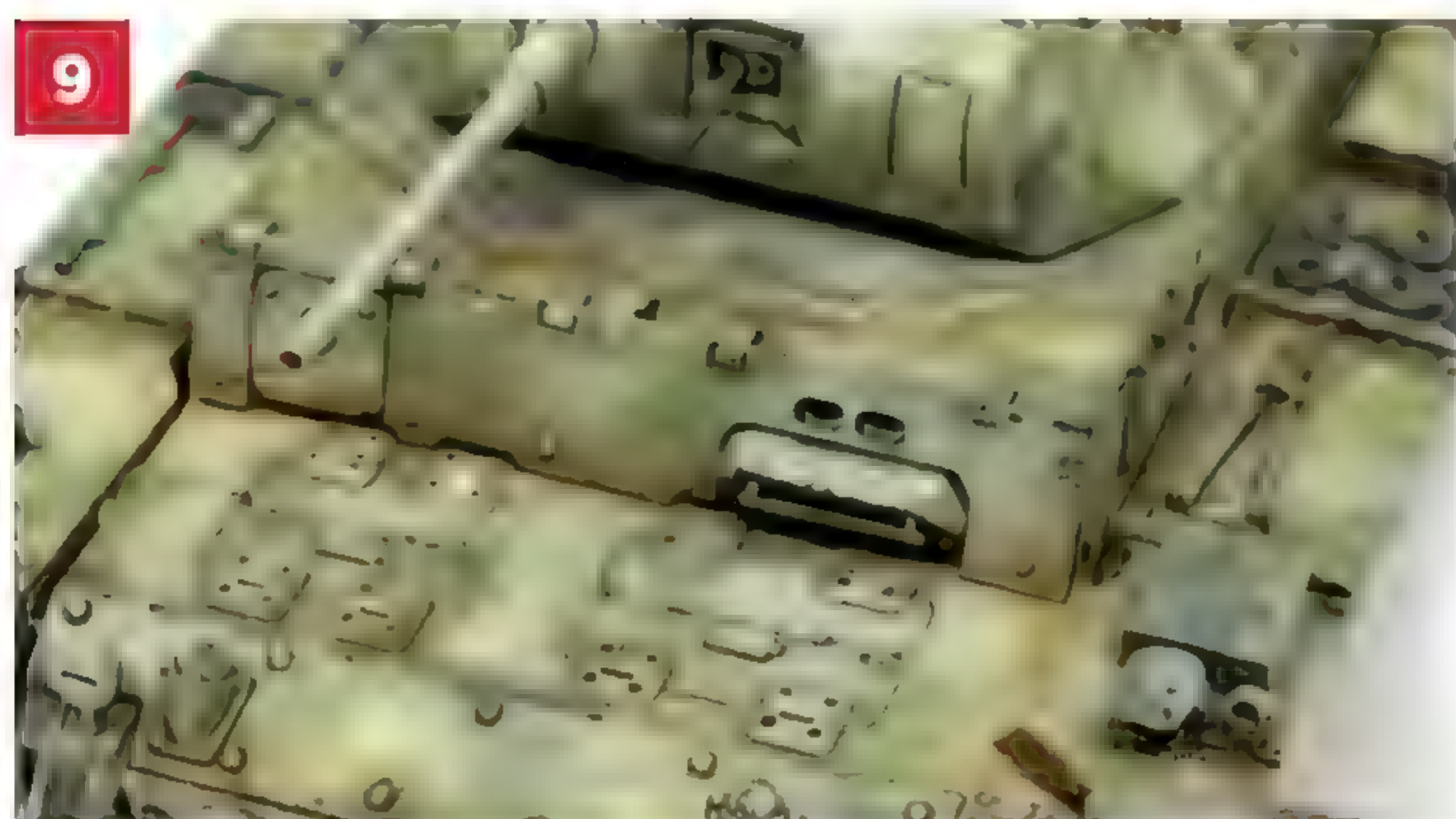
7

Time now for some 'chipped paintwork' effects, a three-stage treatment beginning with Dunkelgelb High Light mixed with a small amount of white. This was sponge-applied to appropriate areas and followed by touches of dark brown (this time applied with a brush) to give the impression of corrosion where damage had extended to bare metal. The third stage? That would come later.



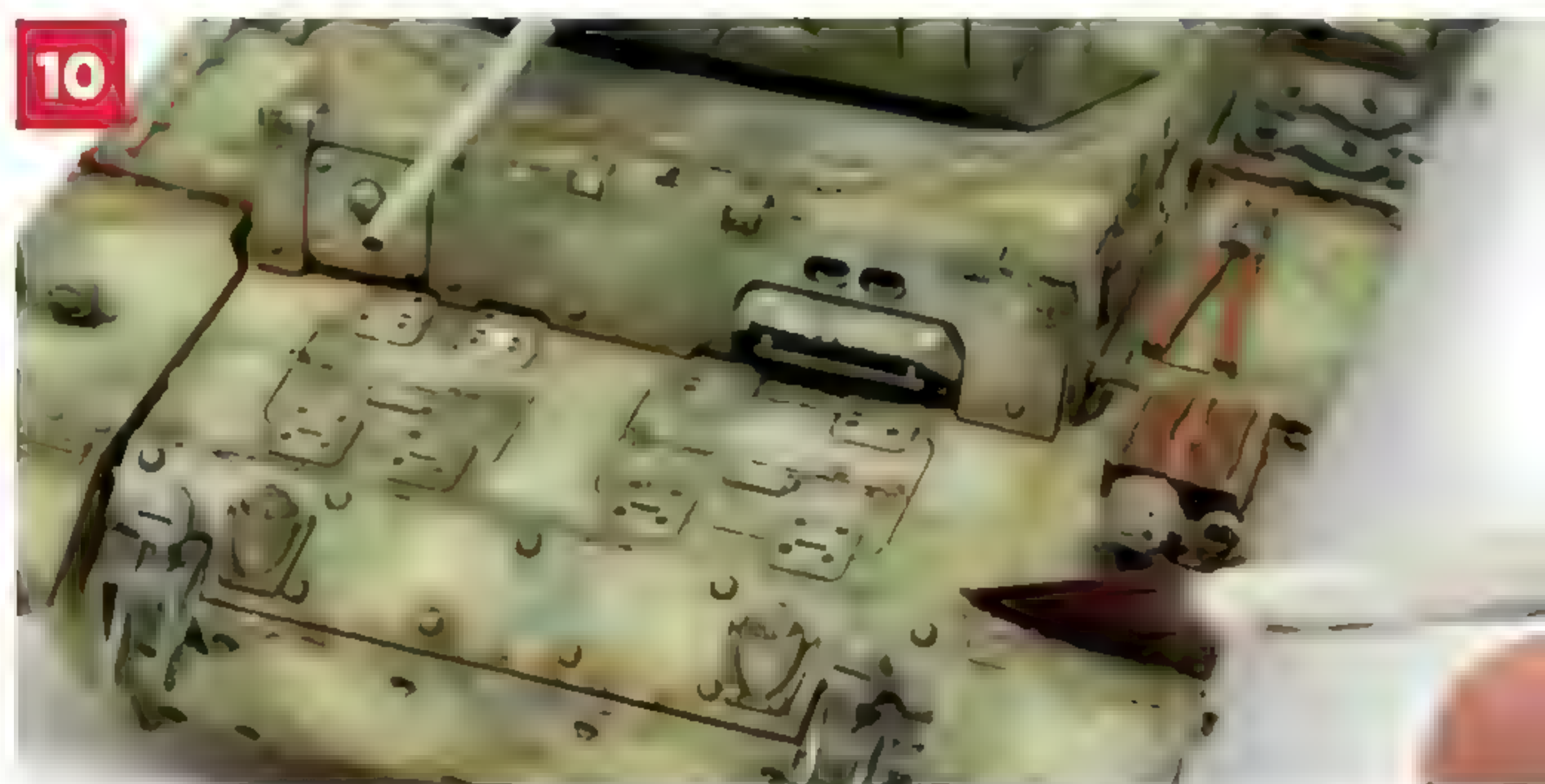
8

I now turned my attention to the lower hull and applied a layer of Light Europe (TE 11) from Adam Wilder's 'Textured Earth' range. I really like these products, as they create a highly realistic appearance. However, being acrylic based, they dry quickly, so it is important to plan how and where they are to be applied, working in small areas at a time.



9

Returning to my AMMO products, I used one of their earth-tone oil paints to vary the effect around the lower hull and suspension. I also applied the colour sparingly over certain areas around the upper hull.



10

Once the earth oil paint was dry, it was back to the chipped paintwork. Stage 3 involved touches of rust-tone oil paint, blended using a moist fine-pointed brush.



11

The final treatment to the lower hull involved using a dark brown oil paint to recreate a build-up of fresh mud. Note the three shades, giving a perfect transition between dry and wet mud.



12

The kit-supplied tracks are perfectly acceptable (particularly if you plan to set the model on a flat surface). However, Ryefield Models' workable tracks are a better option, as they allow you create the characteristic 'sag' along the upper run and conform more easily to uneven terrain. RFM offer both early- and late-pattern tacks for the Panzer III/IV (I opted for the former). Of course, there are other workable track sets on the market, but an added benefit of using the RFM set is the inclusion of a useful assembly jig.





13

Having given the part-assembled tracks a coat of dark brown, I repeated the lower hull weathering treatment and finished by applying a steel colour to all contact areas (both on the interior and exterior surfaces).

15



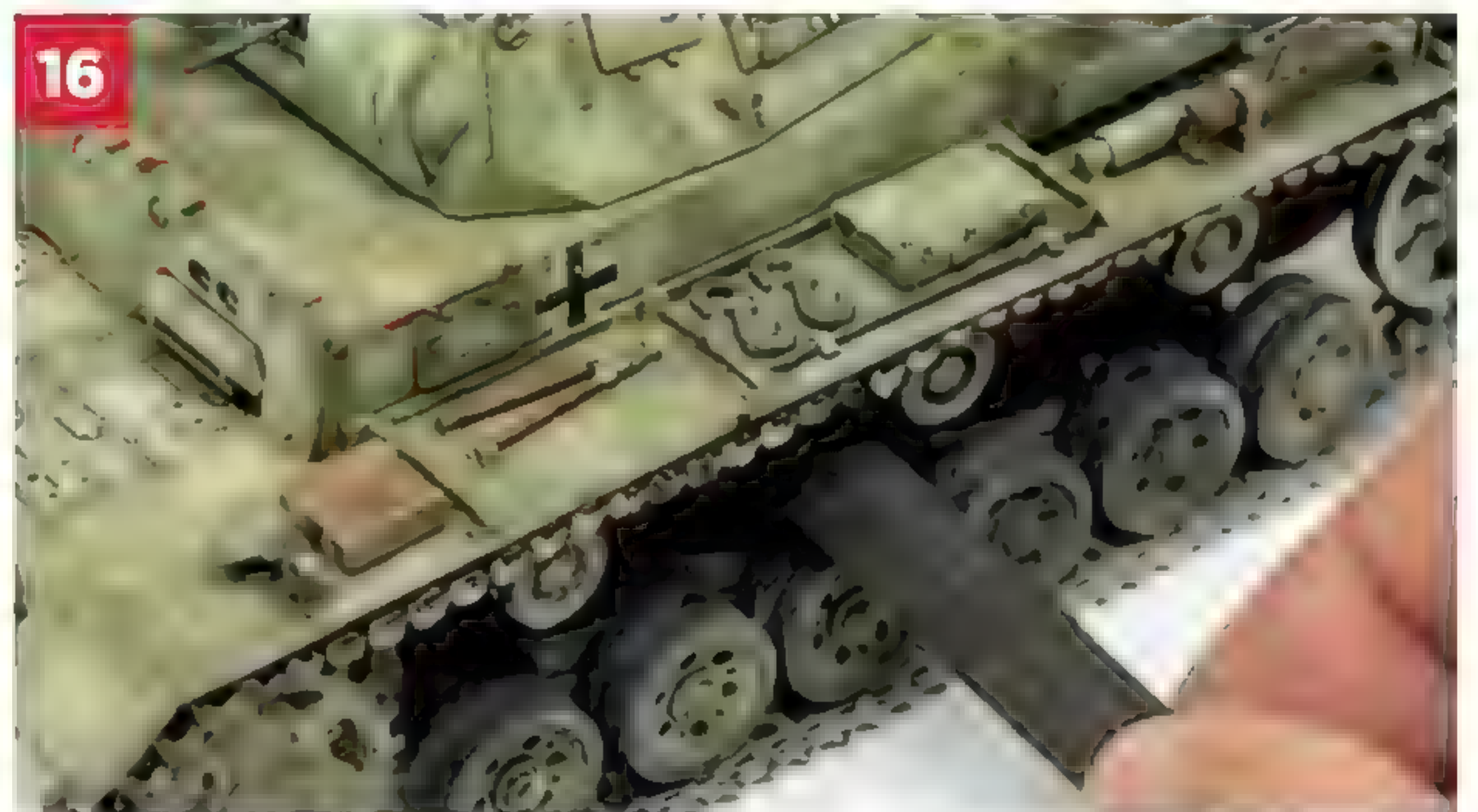
Further details were added to the model, including items of stowage (compliments of Value Gear Details), and a folded canvas sheet made from two-part epoxy putty.

14



The previously painted stowed tools and equipment were suitably weathered, rust-tone oil paint being sparingly applied to all metal portions to give the impression of corrosion.

16



As a final touch grey artist's pastel was rubbed along the edges of the outer road-wheel tyres to suggest an accumulation of road dust, and a subtle contrast against the inner wheels.







## SETTING THE SCENE

17



18



→ Providing an appropriate backdrop for the planned vignette, DioDump's 'Russian Country House - Zubkov' (ref. DD045) comes as a three-part ceramic plaster model, accompanied by wooden strips to create an adjoining fence. Once primed (again with Vallejo Black), the building was painted using LifeColor's 'Weathered Wood' paint set, the only addition being various shades of green to replicate patches of mould and moss along lower portions of the building.

The base itself was formed from a piece of high-density foam, over which I applied a layer of DAS air-drying clay. Having imprinted the vehicle's track marks in the surface, I partially covered the clay with a layer of AMMO Turned Earth Ground (A-MIG-2103) from their 'Acrylic Mud' range, mixed with a quantity of sieved garden soil. Recalling images of the fighting around Kursk, I decided to recreate an area of dry sun-baked ground at one side of the scene. For this effect, I applied a layer of Crackle Paste (sourced from my local art shop). The telegraph pole was made from a length of wooden dowel. This and the slightly modified fence were then painted using my earlier LifeColor acrylics.



19



The terrain was treated to a light spray of Sand Primer (A.MIG-2027) to allow the underlying brown to remain visible. Then, using static grass, PVA white glue and an applicator, I applied random patches of grass to the scene.

20




I applied Adam Wilder's 'Textured Earth' range, 'Light Grey Stony' (TE 08), to create further visual interest to the ground and followed by a series of pin washes to emphasise details.

21



The patches of grass were airbrushed with various shades of green for a more natural appearance, and earth- and sand-tone pigments were brushed over the entire area to create a suitably dusty appearance. And finally, foliage and a selection of wildflowers from Army Painter's excellent range of scenic products.

## Conclusion

I added some figures from Evolution and Mantis Miniatures, replacing some of the heads with my favourites from the Hornet range. With the diorama complete, I was delighted to have this unusual Panzer in my collection. 



## AVAILABILITY

Dragon 1/35 PzBeobWg. III Ausf. H Sd.Kfz. 143 (ref. 9030).







## AT THE BENCH TOM COCKLE

**The Editor** chats to the well-known Canadian modeller and author of books on armoured warfare.

### What are your earliest memories of model making?

Like a lot of modellers I suspect, my introduction to the hobby was influenced by my father at a very young age. A World War II veteran who served in Sicily, Italy and Northwest Europe, he had an interest in the military, and he built the Revell Sikorsky H-19 Rescue helicopter including a man dangling from the winch line outside which I subsequently broke, but the fire was lit. I was a fairly proficient modeller until my early teens having built almost every Monogram 1/48-scale airplane, several ships of various scales and a couple of cars. But I had built only five tanks: the Monogram 1/32-scale M48A2 Patton 'Big Pat' and four 1/76-scale Airfix bagged kits of the StuG. III, Sherman, Churchill and Panther. Almost all of them ended up being targets for my BB-gun unfortunately.

I took a long hiatus in my mid teens until my late twenties when I became reacquainted with the hobby quite by accident. I was reading the latest volume of the Time-Life series on World War II, *War in the Desert*, when a colleague at work showed up one day with a copy of the Squadron/Signal Publication *Pz.Kpfw. IV in Action*. After reading it and visiting the local hobby shop where had purchased it, I was hooked again. It might not have progressed much farther except for a chance meeting at a hobby shop with a fellow I recognised as a parts man at the local GM dealership. He told me about the local IPMS club. At the first meeting I attended in September 1978, Ron Volstad did a figure painting demonstration and a whole new area of

the hobby opened to me. I owe a lot to those early beginnings and my long friendship with Ron and many others who inspired me along the way.

**You are as equally well known as an author and historian of German World War II armour as you are as a modeller. Which came first, the history or the modelling, or, to put it another way, does your modelling inspire your research or vice-versa?**

I was a modeller and amateur historian long before I became interested in being an author. As a modeller, I was interested in the story behind the models I built and would do as much research as I could on each subject. This was well before the advent of the Internet, and so I began to amass a large

library of reference books and publications on World War II with an emphasis on German subjects. Historical and technical accuracy became especially important to me.

My earliest attempts as an author were restricted to preparing





articles for model magazines starting with *Military Modeller*, an American publication out of the United States. At this time, they and *Military Modelling* from England were the only two armour-related magazines available. They gave the modeller a very narrow view of the world of military modelling. My first published article appeared in the February 1985 issue. I have continued to write magazine articles through the years and have had articles printed in a variety of magazines in the US, UK and Europe.

In the late 1990s, Concord Publications began to print a series of World War II photograph books which I found very exciting but lacking in technical accuracy.

I wrote a critical letter to them about it and not long after, I was approached by Freddie Leung through my old friend Ron Volstad, asking if I would be interested in providing editing services for them to improve the final product. During this time, Squadron/Signal produced their first 'Walk Around' on the M4. This led to me approach them about the Sturmgeschütz III Ausf. G Walk Around. After a couple of years Concord gave me the opportunity to author the books, the photos for which were provided by them, and this continued for several years.

In 2004, I was introduced to Marcus Cowper and Osprey Publications by Gary Edmundson and *Modelling the Early Panzerkampfwagen IV* was released in 2005 followed by *Modelling the Late Panzerkampfwagen IV*, and a collaboration



with four other modellers on *Modelling Armoured Vehicles*. In 2016 I was contacted Peter Kocsis of Peko Publishing through my friend Jon Feenstra and have authored several books in their 'On the Battlefield' series and their new 'Through the Lens' series of books. I have also provided editing services on some of their other books. In answer to your question, I would say that my modelling is more influenced by my research. Often, a new picture surfaces that inspires me to buy a new kit so that I can build a model of it at a future date.

**Wartime German armour continues to be mainstay of many modelling benches and there seems no relenting in the release of new German armour kits. Why do you think German armour has such enduring popularity among hobbyists?**

The reason we are where we are at now goes back to the early interest in German armour by Japanese manufacturers like Tamiya and Nichimo in the 1970s. When I was first cutting my teeth in the hobby at that time, the box art is what attracted me the most. I was in awe looking at the photos of →







→ built models and dioramas featured in the Tamiya catalogues in the late 1970s. Basically, I think modellers are drawn to the aggressive look of German armoured, as well as the wide variety of tanks, armoured cars, half-tracks, and soft skin vehicles that were developed in response to the needs of the frontline troops. As the war progressed, German innovations in the use of camouflage paint schemes, improvements made to existing designs and newer tanks like the rakish Panther, Jagdpanther and Tiger II and the massive Tiger I and Jagdtiger, the Sd.Kfz. 234 series of armoured cars and variants of the Sd.Kfz. 251 series of half-tracks have captured the imaginations of modellers. Ron Volstad once told me that Freddie Leung, the owner of Dragon Models confided to him that the worst selling set of German figures sold more than the best set of Allied figures.

**When you published your titles on modelling the Panzer IV for Osprey back in the mid-2000s, hobby forums like Missing Lynx were still at the forefront of the burgeoning international hobby scene. How do you think social media has transformed the hobby in recent years?**

As I mentioned in a previous comment, in the 1970s and 1980s, the world of military I was restricted to what you could read in the pages of the few military modelling magazines available. Attending model shows and competitions, usually local or regional, also played a big part. National or international shows also played a part to some extent, although the costs sometimes limited attendance. The first international show I attended was the IPMS/US Nationals held in Seattle in 1992. This opened my eyes to the actual extent of interest in the hobby. To help defer costs, five of us drove down in my station-wagon from Edmonton and shared two motel rooms.

The rise of the internet in the late 1990's led to the creation of military modelling websites which became more plentiful as the Internet expanded. I was an early member of both [www.track-link.com](http://www.track-link.com) and [www.missing-lynx.com](http://www.missing-lynx.com). I also occasionally visited a few other sites I was aware of but these two stood out to me as they were more strictly moderated to keep the conversations civil. As more information began to flow, it became obvious that the Internet would become the most important reference source available. About a decade ago, I joined Facebook and was amazed at the number of forums that had been created dedicated to one form or another on military modelling (and everything else imaginable). I would have to admit, my collection of unbuilt kits would be substantially reduced had I spent the time building instead of browsing

the Internet. Even so, it has been an incredible experience sharing my work with like-minded individuals and seeing some of their amazing works in return. Sharing information is also one of the major benefits of the Internet. You can almost always find someone who knows that bit of information you are looking for.

**We've published some of your work in MMI over the years and your models have always been wonderfully detailed and grounded in your careful research. Looking back, which projects – modelling and publishing – are you most proud of?**

I always think the last model I finished is my best one, it means I am still growing as a modeller. Some that still stand out to me though are the ones I built for the Osprey books on modelling the Panzerkampfwagen IV. Of those, the Panzerkampfwagen IV Ausf. A was the one I spent the most time on. The basic hull and suspension were from a Tamiya Panzerkampfwagen IV, but I scratch built the entire superstructure, rear hull, turret roof and front from styrene sheet using the drawings from the Begleitwagen Panzerkampfwagen IV book, added Modelkasten road wheels and tracks, and Aber photoetch fenders. Now, most of the models I built for those books can be built out of the box from kits and with a higher degree of accuracy.

**What has been the biggest change in your own pursuit of the hobby since then?**

To me the biggest change has been the introduction of 3D printing in the hobby. A level of super detailing that was previously only available to those with the skills to scratch build the new parts needed for a project is now available to anyone





with competent computer skills and access to a 3D printer. In a very few short years, 3D printing has changed the whole modelling experience! I'm constantly amazed at the number of modellers posting on various websites who have turned out near perfect replicas of parts overnight and even complete model kits.

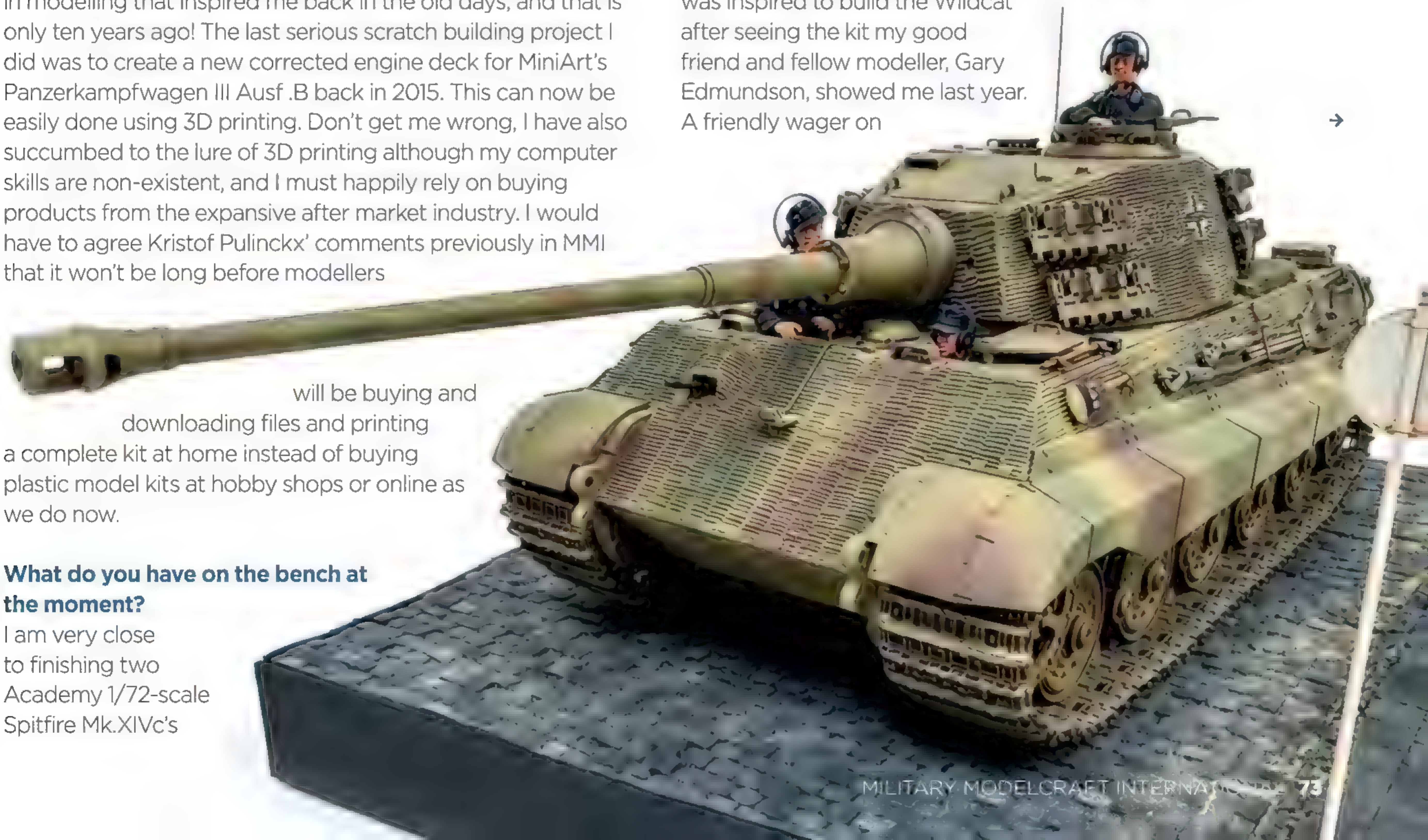
In a way, 3D printing has taken away a lot of the challenge in modelling that inspired me back in the old days, and that is only ten years ago! The last serious scratch building project I did was to create a new corrected engine deck for MiniArt's Panzerkampfwagen III Ausf. B back in 2015. This can now be easily done using 3D printing. Don't get me wrong, I have also succumbed to the lure of 3D printing although my computer skills are non-existent, and I must happily rely on buying products from the expansive after market industry. I would have to agree Kristof Pulinckx' comments previously in MMI that it won't be long before modellers

and an Eduard 1/48-scale F4F-3 Wildcat. The Spitfires are being finished in the markings of an aircraft flown by a close family friend who was photographed in one he flew in June 1945 while assigned to 412 Squadron RCAF. My oldest son bought the kit for me to build for him several years ago and embarrassingly I just got around to it earlier this year. I have always had an affinity for World War II US Navy aircraft, and I was inspired to build the Wildcat after seeing the kit my good friend and fellow modeller, Gary Edmundson, showed me last year. A friendly wager on

will be buying and downloading files and printing a complete kit at home instead of buying plastic model kits at hobby shops or online as we do now.

#### What do you have on the bench at the moment?

I am very close to finishing two Academy 1/72-scale Spitfire Mk.XIVc's







→ who would finish theirs first followed with a bottle of Calvados on the line. Not being content to build out of the box, I bought the 3D printed engine, cockpit, wheels and machine gun barrels which added to the time it took. The main obstacle in the road to completion has been the decal application which I'm in the final stages of finishing. Although the wager has been lost, although the debt has yet to be paid, we both had fun with our builds.

**What would your advice be to a newcomer to the hobby wanting to ground their modelling in historical accuracy and realism?**

I often struggle when I want to comment on someone else's work in the numerous online forums I frequently visit. My own work has always been grounded in accuracy and realism, and so I tend to look at those items with a critical eye. For the most part, there are modellers like me, 'rivet counters' is the term generally used,



and modellers who build for fun. By the way, it is possible to be both.

For a novice, or for that fact an experienced modeller, it's easy to make mistakes. For example, in Tamiya's newer late Panther Ausf.G kit, the instructions show the sliding shutters on the engine deck on both sides when in fact they were only on the right side. This is a common error I see and one that the modeller can't necessarily be faulted for, after all it's in the instructions. I have also seen turret side hatches on Panzer III's and later Panzer IVs with the hatches reversed and tracks that are on backwards. Therefore, when I offer a comment on another modeller's work, I always start off by offering a positive comment about their model followed by any critical remarks. In my opinion, this draws modeller's attention to the error in a sympathetic way, making it a learning experience.

The best advice I can give to a modeller who wants to improve his skills and accuracy is to study as many references as possible before you start and make notes to yourself. Don't always believe what you read or see in the instructions. **END**





**KIT THUNDER MODEL**  
**SCALE 1/35**

# LIBYAN DESERT TAXI SERVICE

**Rick Lawler** builds the new Thunder Model Ford F30 LRDG truck.

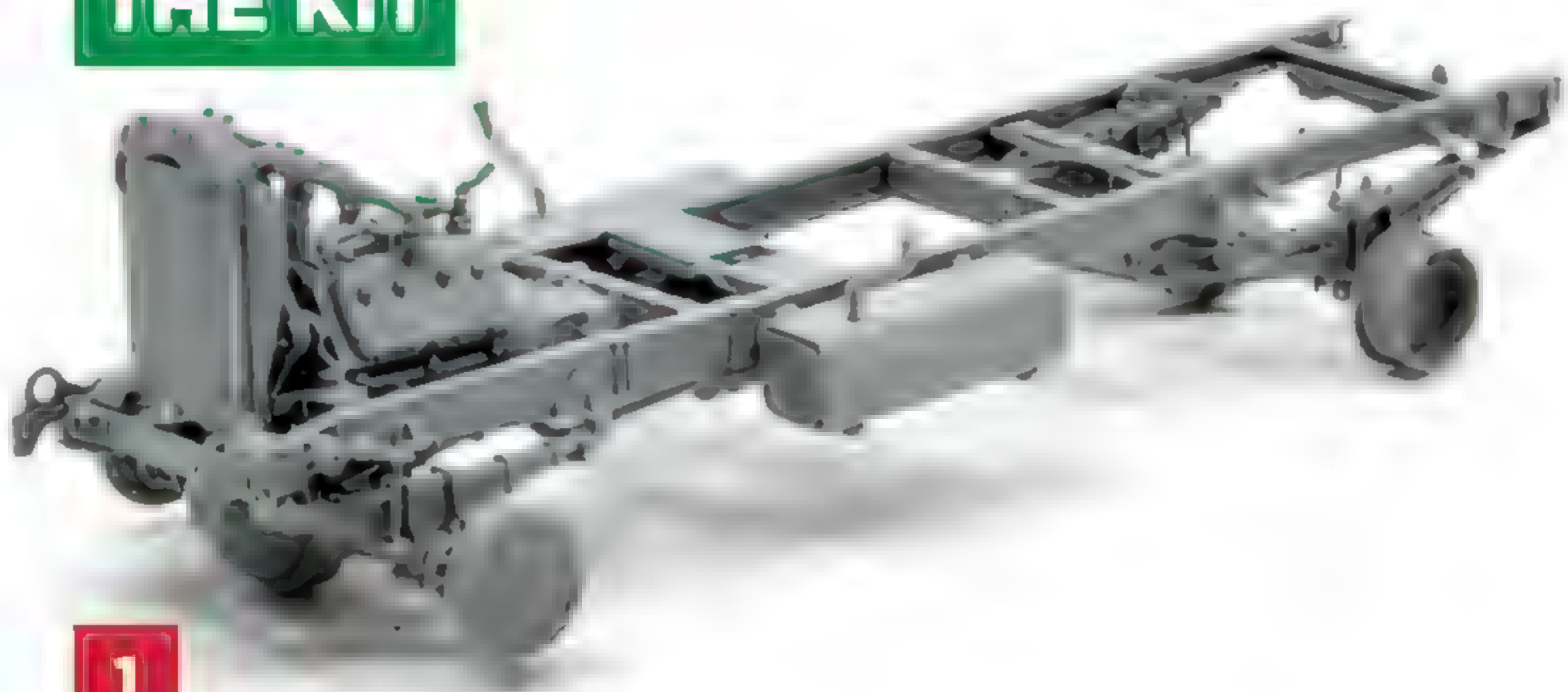
In the early turbulent days of World War II, the SAS (Special Air Service) an audacious band of elite warriors stepped into the fray with unparalleled bravery against the backdrop of the unforgiving landscape of Libyan Desert. Led by the controversial and charismatic Lieutenant-Colonel David Stirling, the unit was formed in November 1941. Consisting of just 67 officers and men, it was designated 'L Detachment Special Air Service Brigade'. The name was part of an intelligence bluff to exaggerate its small numbers. Stirling chose as their motto the now legendary phrase 'Who Dares Wins'. Their mission was clear yet perilous: to penetrate deep hearts of Axis forces with a relentless resolve to outwit and outmanoeuvre their adversaries. Their legendary exploits would come to symbolise the fierce determination and exceptional skill of a unit that thrived in the crucible of wartime adversity.

The SAS would serve alongside the better-known Long Range Desert Group (LRDG), established on 3 July 1940 and led by Major Robert Bagnall. The LRDG was formed specifically to carry out deep penetration, covert reconnaissance patrols and intelligence missions from behind Italian lines, although they sometimes engaged in combat operations. Because the LRDG were experts in desert navigation, they were sometimes assigned to guide other units, including the SAS in their missions across the Western Desert.

The Ford F30 LRDG truck was the result of a culmination

of almost fourteen years of desert exploration before World War II. Specially fitted tyres, a water condenser for the radiator, sand mats, sand channels, a sun compass, and numerous other modifications made it possible for a small band of soldiers to accomplish what few men ever imagined could be accomplished. The LRDG trucks became a mobile oasis in the desert for the troops who relied on them. The usual crew for the 1½-ton truck was three men (driver, gunner and commander) and it was not uncommon for trucks to set out for missions overloaded with as much as two tons or more of supplies to sustain the force while on extended patrols.

## THE KIT

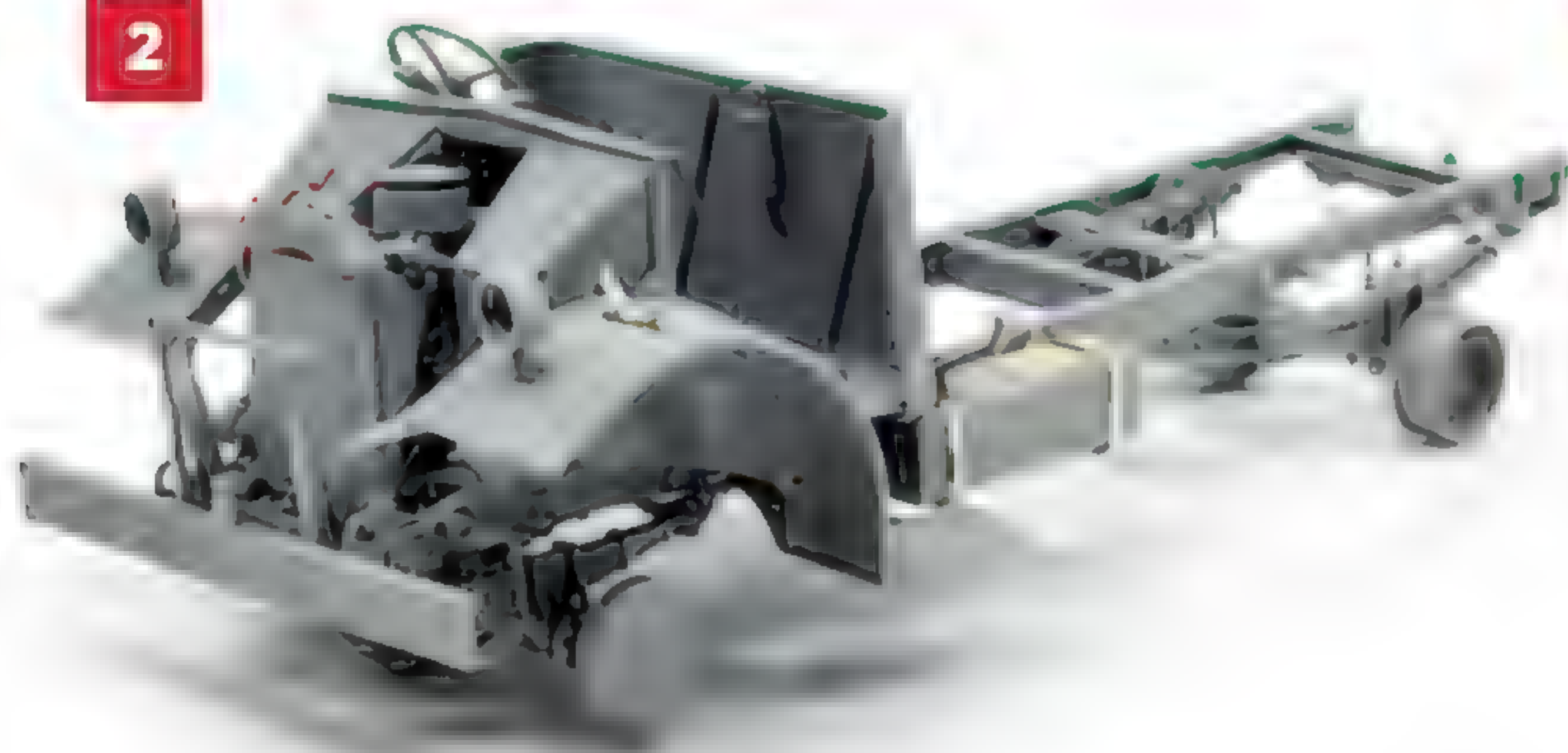


**1**

The beginning construction steps of the new Thunder Model F30 are focused on the assembly of the frame and engine. Frankly, almost every truck and car model kits follow this same assembly path and so there are no real surprises here. The moulding is crisp, and the fit is very good. →

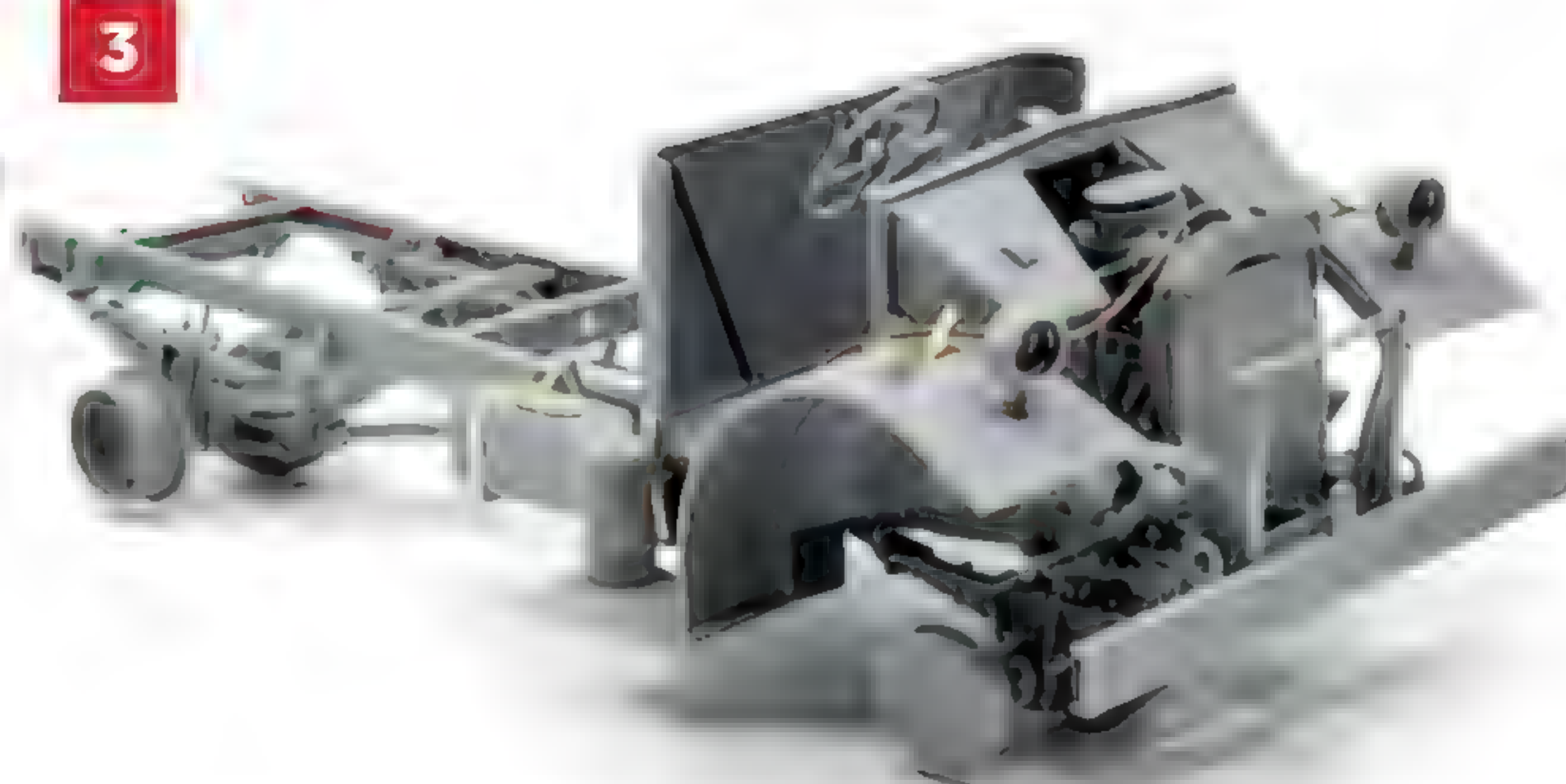


2



→ The parts count of the chassis, suspension and engine is fairly high, with many smaller parts making up a numerous sub-assembly. Admittedly, this all becomes a bit fiddly at times and I found myself wondering if perhaps a single part (rather than multiple multi-piece assembly) would make for a more enjoyable experience. That said, the finished product certainly looks the part.

3



One distinguishing feature of the LRDG F30 was the open engine and driver's compartments to allow for cooling. A quick look at reference materials shows that the level of detail in this area is somewhat simplified, which provides the builder the opportunity to detail this section if one so chooses. I kept my extra detailing to a minimum with the addition of just a few hoses and wiring.

4



Adding the rear cargo bed finalises the of the construction of the model.

5



A few of the smaller fittings and components remain separated for easy painting and will add them later.

## PAINTING AND WEATHERING

6



Because the basic colour of the finished model will be a light sand shade, I chose to begin by using a white primer as opposed to my usual grey primer. This white primer in the background supports good coverage without fear of 'greying' the light base colour.

7



Painting begins with the engine, engine compartment, and underside in a black/rust color, a mixture of different AK Interactive Gen 3 acrylics. I don't worry too much worry about the overspray as this can be tidied-up in the next steps.

8



The base color was applied with AK Interactive Real Color Pale Sand (RC018). I purposefully chose a base colour that is a step or two on the lighter side than the original BSC. No. 61 Light Stone. I knew I would adjust the tint and colour saturation using oil paints in the subsequent steps.

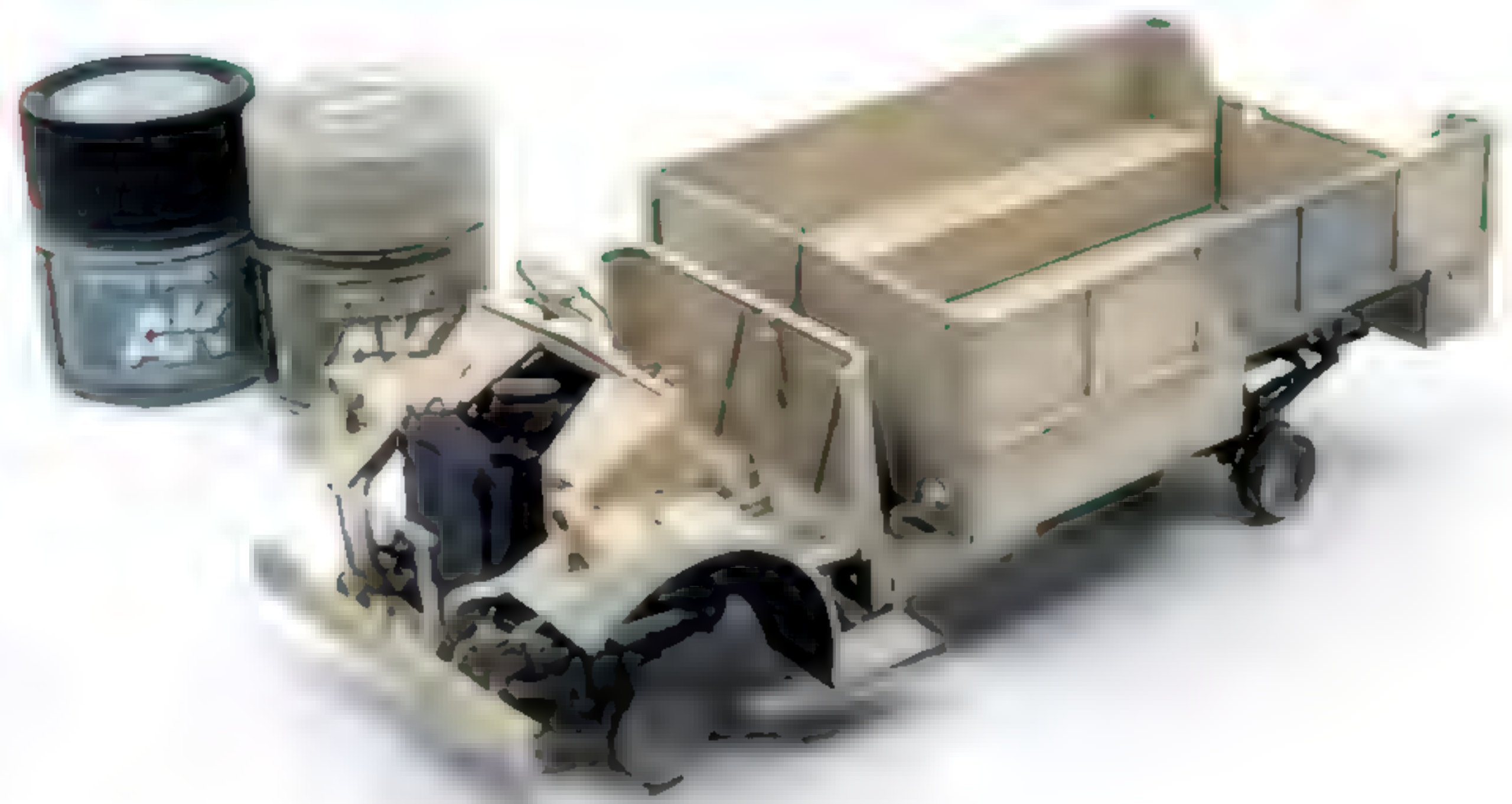


9



The paint schemes and camouflage patterns used on the LRDG and SAS vehicles were as varied and independent as the men in the ranks themselves. Some vehicles remained in a Light Stone overall, while others sported camouflage patterns of hastily sprayed squiggly lines, or more complex patterns based on the regulation Caunter schemes. For this vehicle I chose to do a hard-edged disruptive pattern. To begin the areas of camouflage are defined using masked using tape.

10



The camouflage color is mixed using AK Real Colors Blue Grey (RC256) and Grey/Grau (RC052) to achieve a colour approximate to the BSC. No. 28 Silver Grey used by the British forces deployed in North Africa in 1940 and 1941.

11



With the camouflage colours in place, now I can move onto the painting/weathering steps using oil paints. By design I combine the painting and weathering process into a single phrase or finishing step. This simultaneously allows you to adjust the tone and hue of the Light Stone base colour while also adding many of the more-traditional weathering ideas such as dust and dirt, panel profiling, and various stains. The process is very easy, and it basically comes down to loading the brush and changing colours with each brush stroke. In certain areas the intention is simply to adjust the base colour, in other areas small stains or rain marks might be added. In other areas I might add darker tones to create contrast and definition around the surface details. →





12



13



→ The LRDG operated for long periods behind enemy lines and isolated from supply lines, and as such, the patrols would need to be self-sufficient. Reference photos show these vehicles loaded with regulation necessities (ammunition, food and basic kit), along with a good smattering of non-regulation personal items.

Most of the stowage items are resin pieces from Value Gear. These are painted using a combination of AK Interactive Gen 3 acrylic paints and the Real Color Markers. In addition, Magic Sculpt was used to create additional tarps and blankets. Nestling the Magic Sculpt blankets under and around the resin pieces helps to create a sense of weight and a more natural appearance to the load.

14



15



On the whole, the stowage pieces were painted individually and then placed into the cargo bed, but at the same time there are many instances where an odd box or blanket was painted after placement. Ironically, adding stowage to make it appear convincing (natural and tossed about) requires a good deal of planning.

The final details, such as the sand channels, additional blankets and tarpaulins (from Magic Sculpt), were added, and together they round-out the build. As a final weathering step, I added a light dusting of pigments to certain areas to achieve a gritty, dusty appearance which also serves to unify the colours.

## Final Thoughts

As a bit of a personal aside as I finished this project, it just so happens that over the past couple of years I have had an interest in exploring and researching the exploits of the LRDG. It began by reading the excellent book *SAS Rogue Heroes* by Ben Macintyre, followed by several other biographies and account by other authors. And then this was all capped-off by the *Rogue Heroes* TV series. And so now, with the release of the Thunder Model's LRDG F30 my exploration has come full circle with a wonderful representation of this unique vehicle in service with these extraordinary soldiers. **END**



## AVAILABILITY

Thunder Model 1/35 LRDG F30 Patrol Truck (ref. 35305) is available from good model shops. Thunder Model are distributed in the UK by Albion Hobbies ([www.albionhobbies.com](http://www.albionhobbies.com)).





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KIT: TRUMPETER  
SCALE: 1/35

# THE PRICE OF FOLLY

**Imad Bouantoun** models a destroyed BMP-2.

When surfing the Internet at the beginning of the Russian invasion of Ukraine in early 2022, I came across a lot of photos of burned out BMPs and other Russian AFVS. Since February 2022, according to the open-source monitoring site Oryx, the Russian Federation has lost over 1,500 BMP-2s either destroyed, abandoned or captured. In the same period, the Ukrainians have lost over 230 BMP-2s.

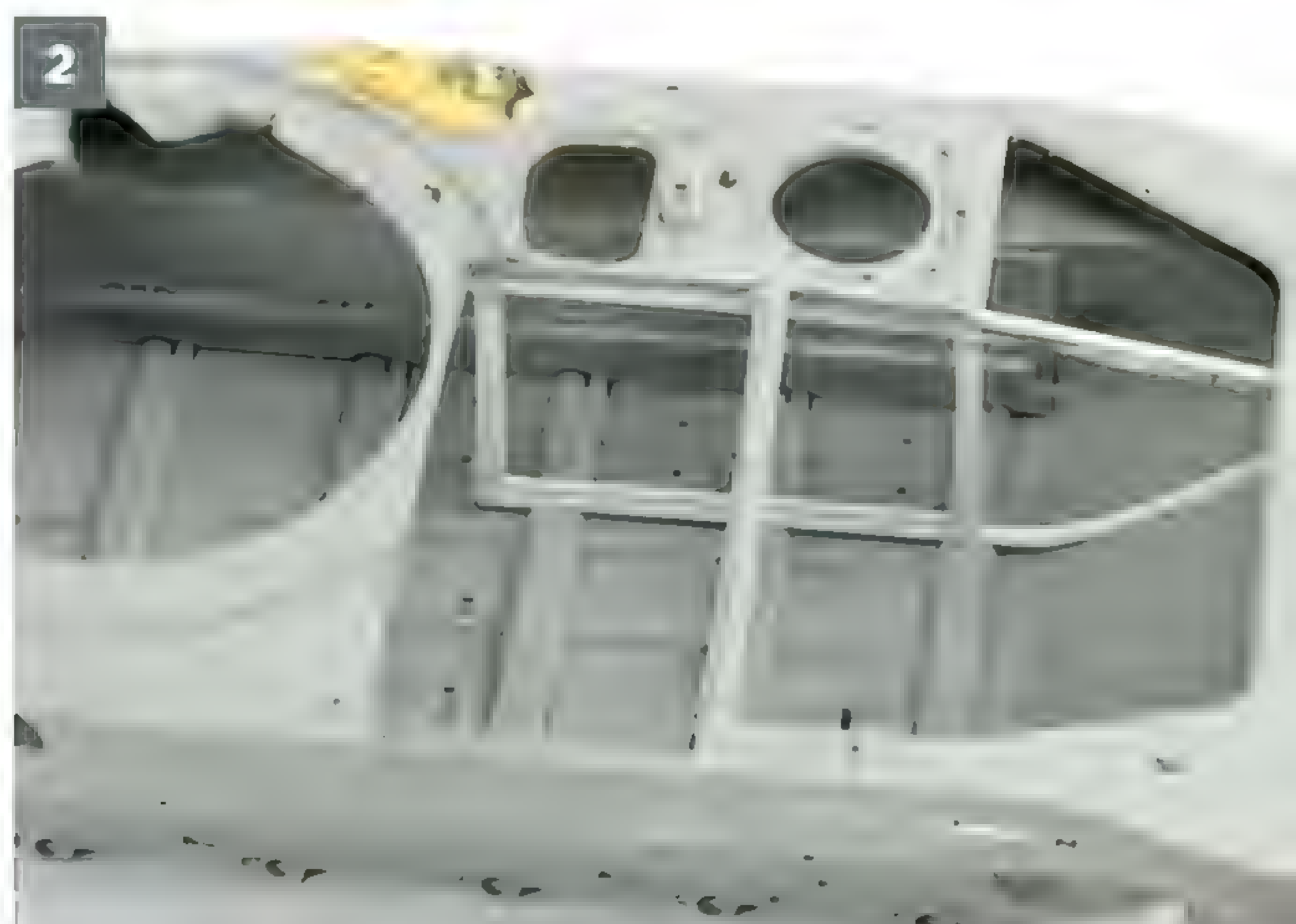
I decided to represent a totally burnt-out Russian BMP-2 by collecting as many photos and as much information about this vehicle as I could. I started studying the different materials used during manufacturing, as each produces a different effect when it combusts. It took me a month or so to collect all the data before I started the building process.



## BUILDING A DESTROYED BMP-2



I thinned the plastic using a cutter and grinder fixed to my hobby mini-power tool, taking great care not to damage the plastic. The engine cover was removed with a very fine blade fitted to the drill, but only after the lines to be cut had been scribed. As you can see in the picture, but you should be very careful since during this process you can damage the plastic.



I made the engine cover frame using an aluminium L-shape and the screw holes using 0.3mm drill bit. The bulkhead separating the engine from the driver's station was first made with styrene strips.



*This was one of the most challenging modelling projects I have undertaken*



My challenge was to make the interior of the vehicle not only as accurately as possible but to depict as realistically as possible the effects of the battle damage and internal explosion, not to mention the effects of fire and smoke. I began by working out the dimensions and designing the transmission and all the other elements using 3D software. I then printed them and began the involved work of modifying the lower hull to accommodate the new scratch-built and 3D-printed details. This was one of the most challenging modelling projects I have undertaken, which took me some three months to complete.



The rib that strengthens the fighting compartment roof part was made using an ABS U shape and for the holes, I used a 4mm drill bit.



The interior parts were designed in Solid Works software and 3D-printed. I then carefully glued them in place. The wires for various parts were added with 0.2mm solder wire.

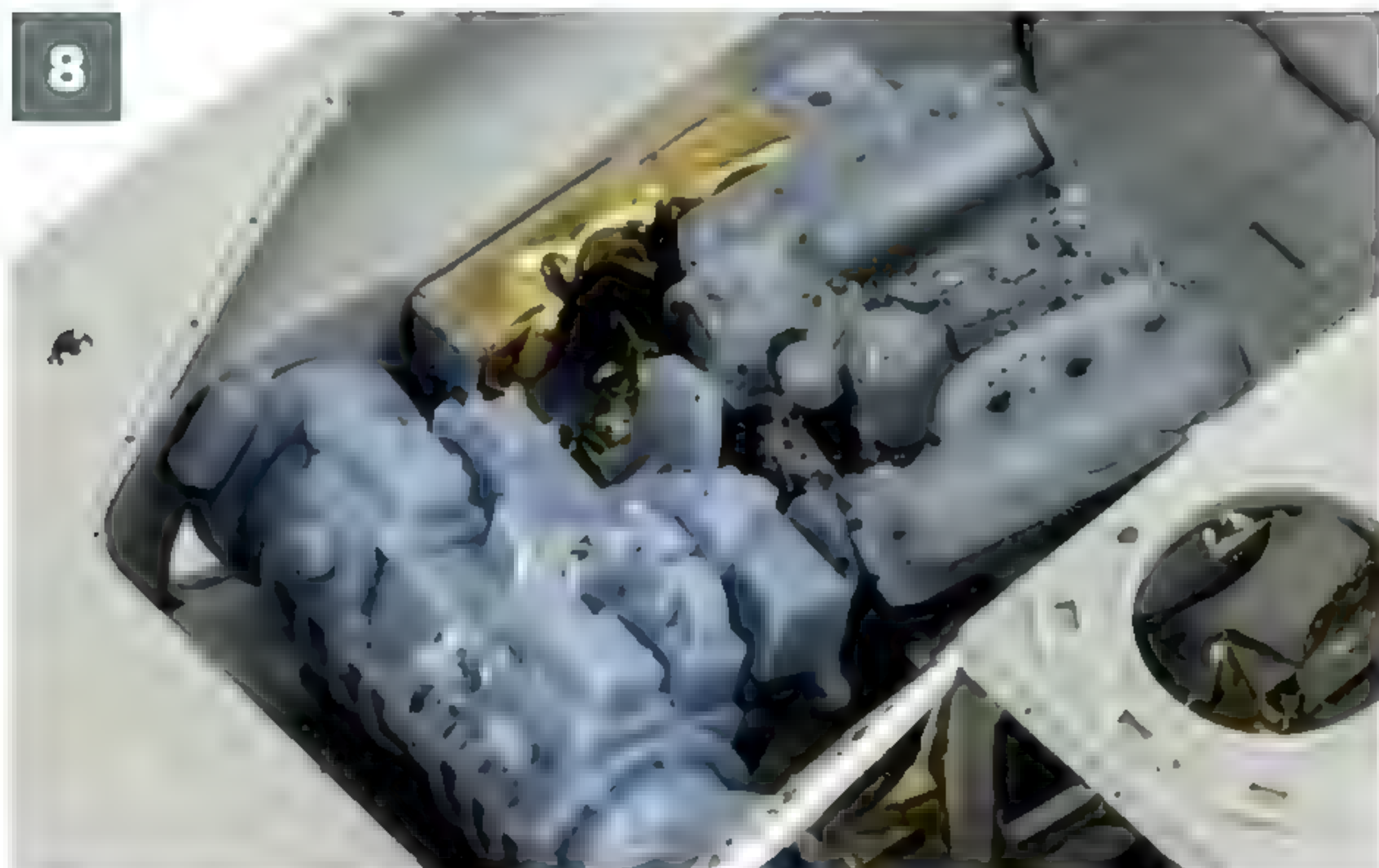


5



→ I installed the turret ring and made the screw holes using a 0.3mm drill bit. The 0.4mm rivets were picked up with a silicon pen, which greatly helped the process, and superglued in place.

8



I 3D-printed the fuel tank, damaged it and installed it next to the the engine and transmission

10



The final steps were to put in place the parts behind the driver's dashboard and install the damaged grilles, made from sheet styrene, aluminium and photoetch. Now the engine compartment was complete.

12



Now the main structures of the rear interior were ready, it was time to start the detailing.

6



To create the bullet holes, I used a 0.5mm drill bit on the 3D-printed parts.

7



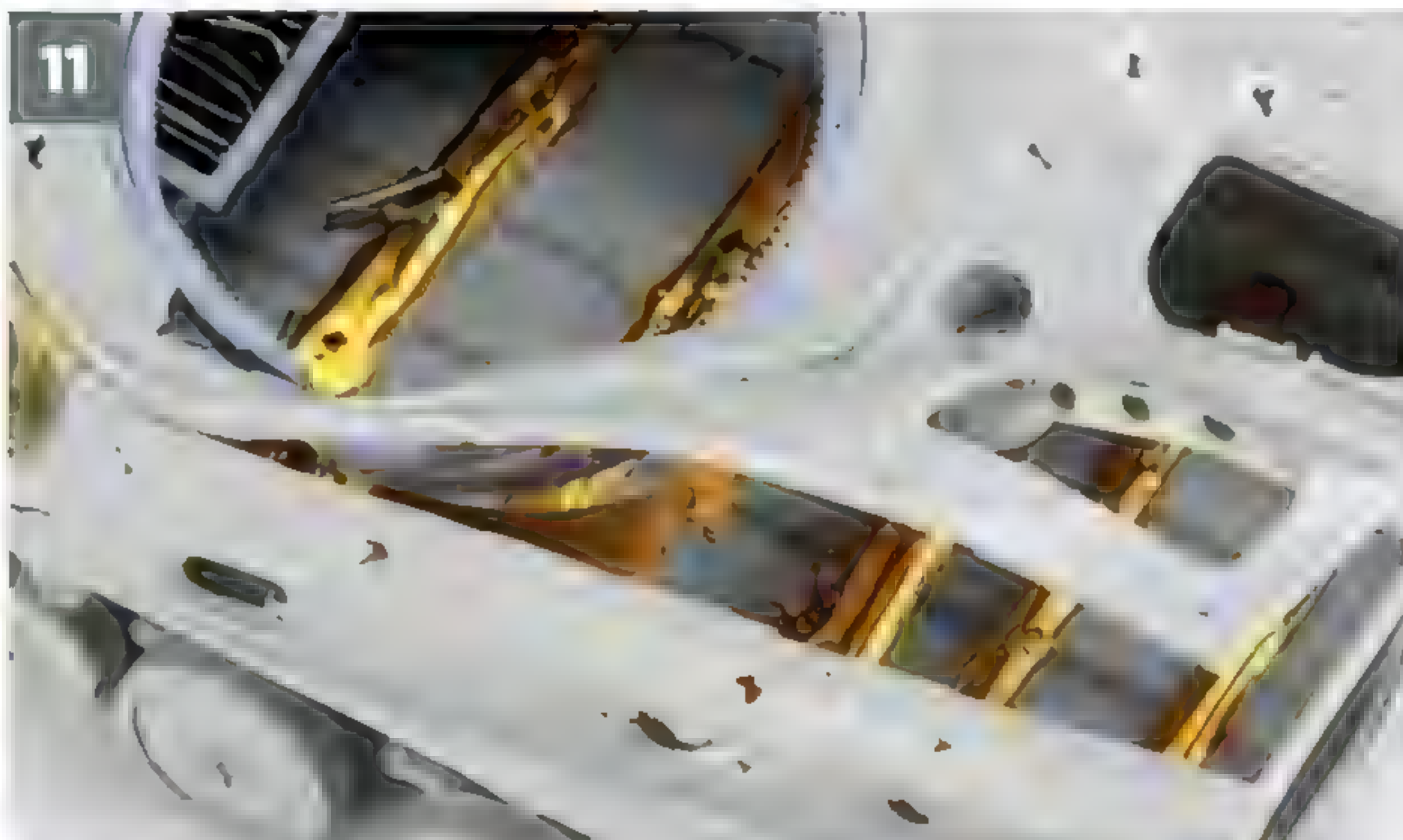
The air filter was made from aluminium strips, and I also reworked the engine frame from aluminium sheet. This made it much easier to bend to the desired shape, replicating the effect seen in the reference photos.

9



I also printed the connectors to the fuel pipes and installed the pipes themselves using thin copper tubing. The pipes are installed as you can see in the picture, the engine part is done!!

11



I made the cover for the roadwheels axles from aluminium sheet, damaging it using cutters and tweezers, always following the reference photos as closely as I could. You can see the result here.

13

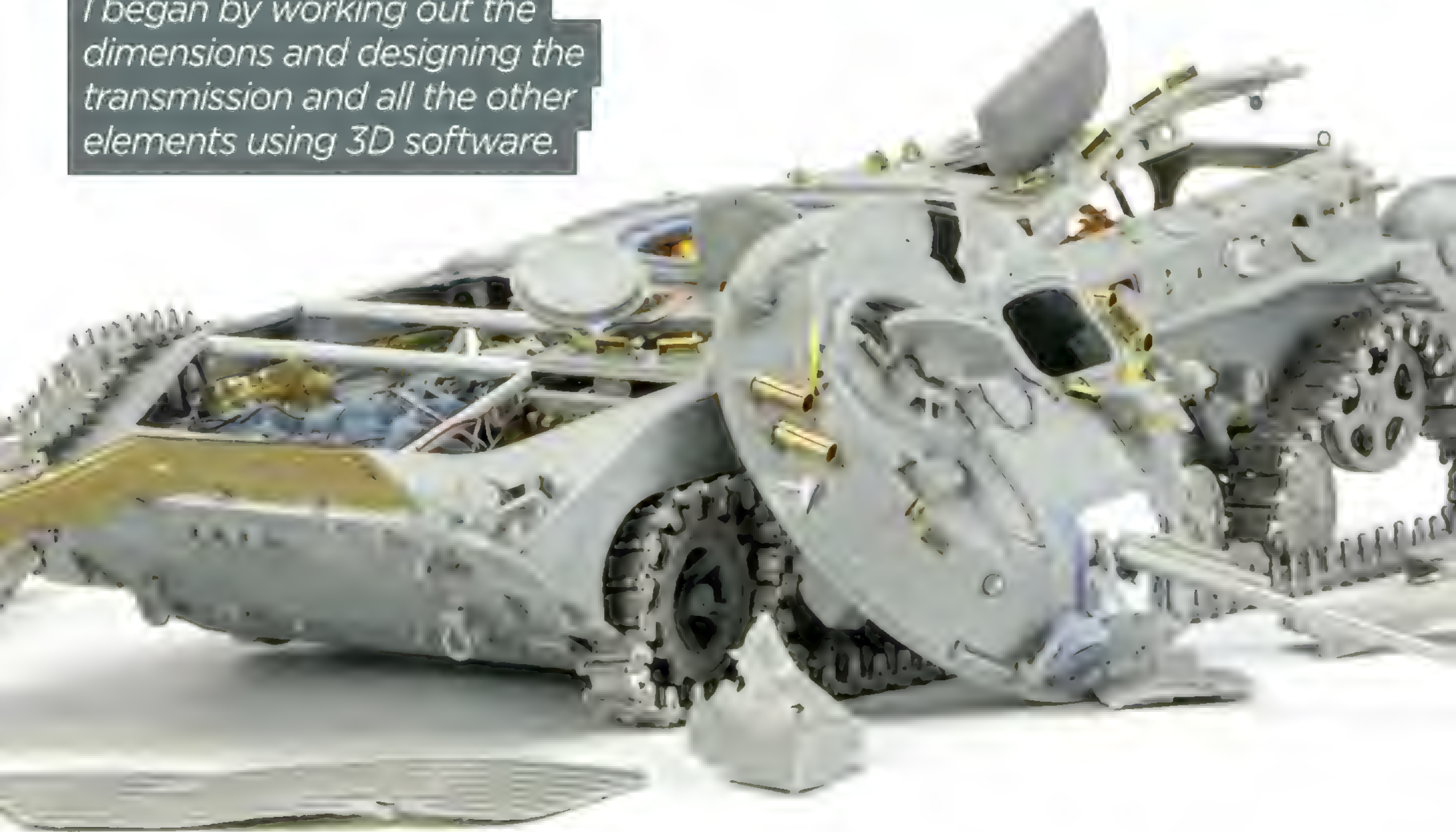


For the internal handles I used the handle-bending tool from RP Tools and 0.5mm copper wires. They were installed with superglue.

→



*I began by working out the dimensions and designing the transmission and all the other elements using 3D software.*





14



→ I removed the moulded-on detail from the kit's seats. I used 0.5mm copper wire to build the main shape

16



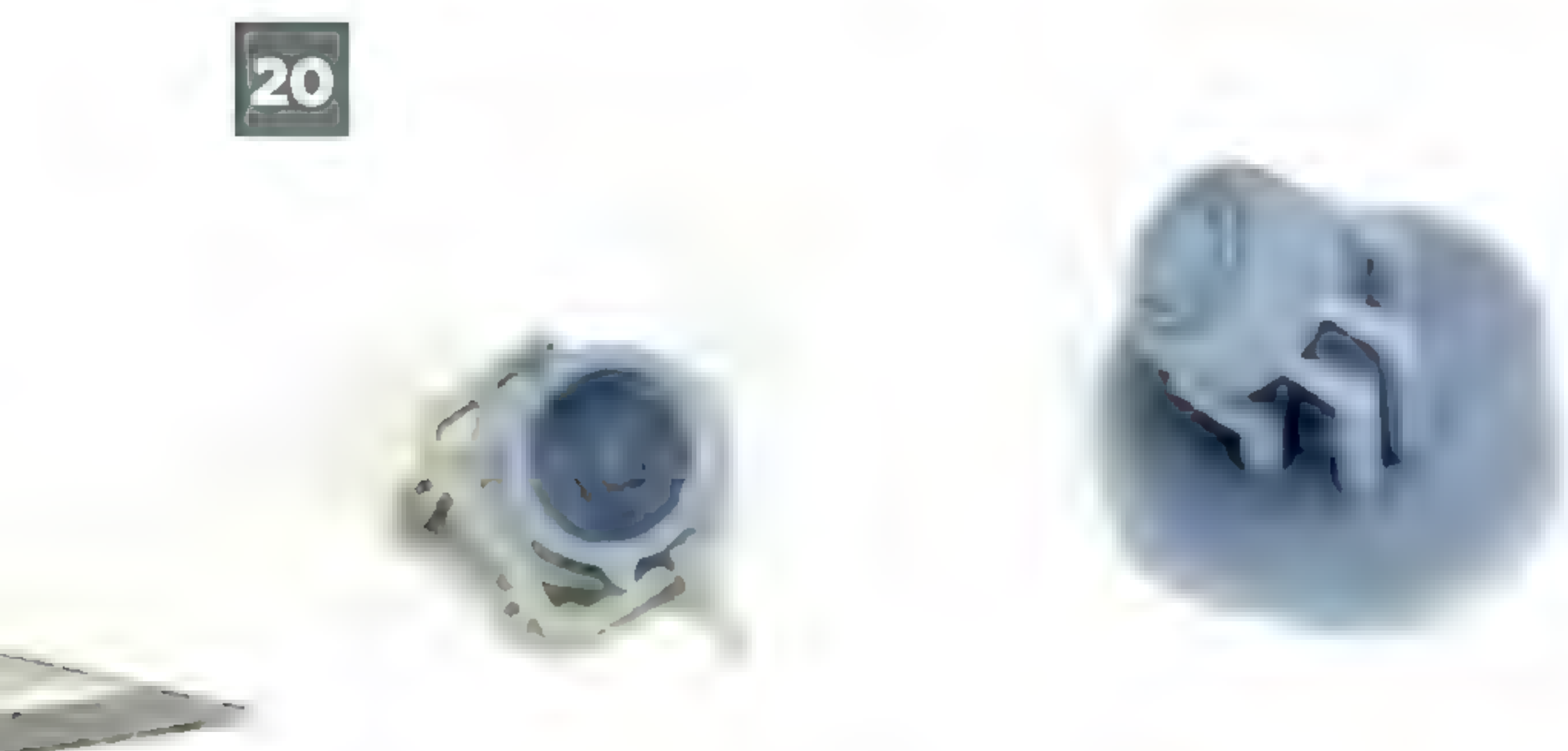
I removed the axle stops and replaced the kit wheels with some resin burnt wheels from Panzerart.

18



The interior at this stage. Thinning the kit plastic allowed me to make the shrapnel damage with a knife and by gently applying heat and bending the plastic.

20



I designed and 3D printed a new front searchlight and made the broken glass effect.

15



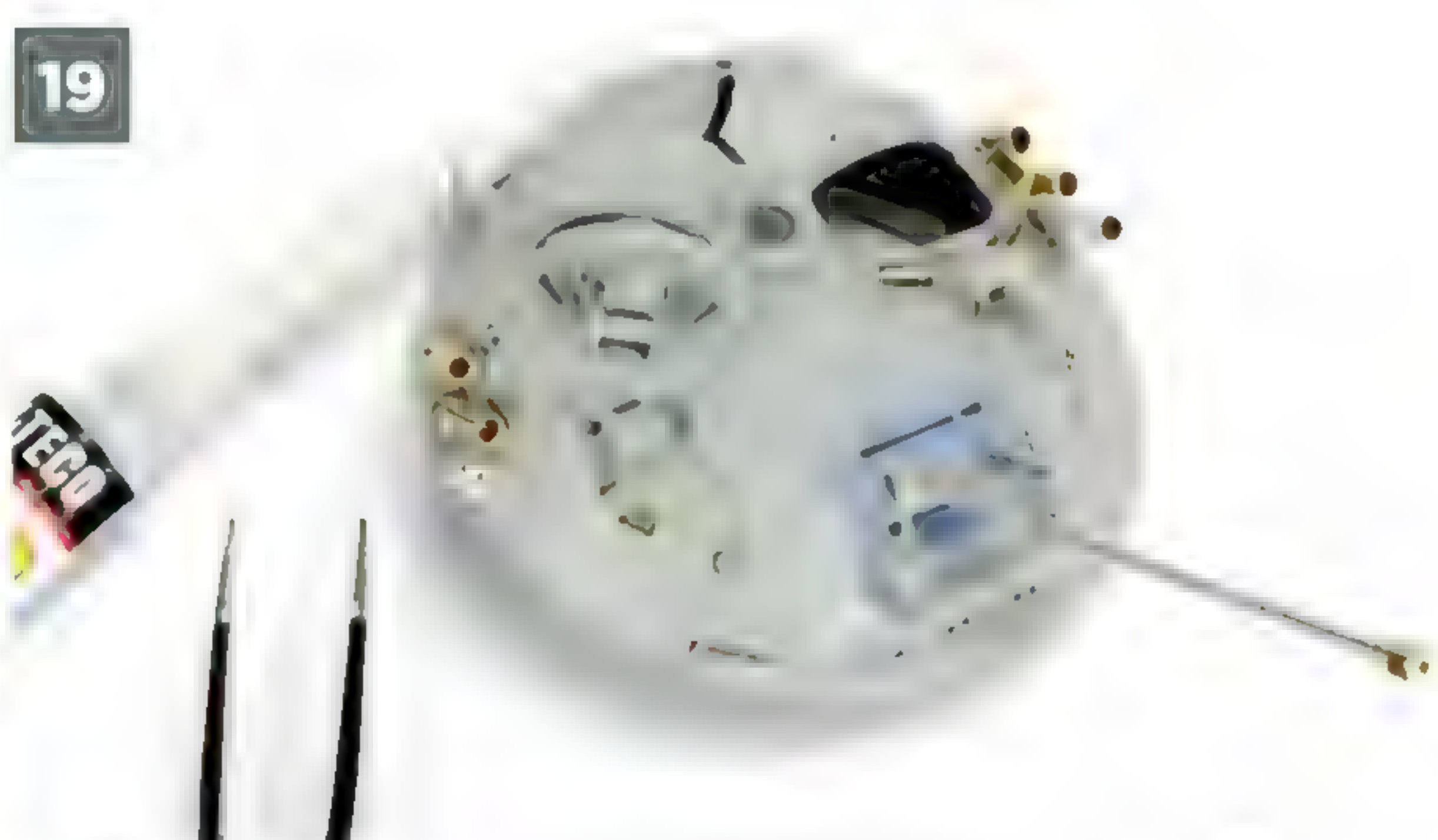
I installed the outer sprocket ring. As the sprocket will be broken on side, I added a broken screw in some of the empty holes.

17



After some looking, I finally found photos of the fighting compartment ventilation system. I scratch built it from copper tubes and installed it using aluminium strips.

19



I studied photos of the damaged BMP-2 turrets and committed to the main structural damage. I had to scratch build a new mantlet with its cover and I replaced the kit smoke discharge with open aftermarket ones.

21



The fenders were also thinned using a grinder in my hobby power tool and then bent using an electric heater. It's important not to use an open flame and this risks suddenly melting the plastic completely.





## PAINTING AND WEATHERING



22

I started the painting process by applying a layer of Vallejo Grey Surface Primer (74.601). It's important to have a consistent surface to paint on in a mixed-media project like.

23



I applied the main colour on the BMP using a mix of AMMO Medium Light Green (A.MIG-0051) and White at a ratio of 7:3.

24



For the aluminium parts of the armour, I applied a layer of Alclad Aluminium (ALC101) as a base, then over that I airbrushed AMMO Scratches Effect (A.MIG-2010) followed by a layer of the green. I then used water and some stiff brushes to remove parts of the green, revealing the aluminium below.

25



I then began applying the fire damage. I applied different layers of AMMO rust shades, followed by light grey and white. The most important thing during this process is to keep the reference photos in front of you. →







26

→ I continued the effect by applying different shades of rust and white using the sponge technique.



28

Once the main rust and burnt metal effects were done, I protected the paint with a layer of satin varnish and began applying a black oil paint pin wash. Once dry, this was followed with various enamel-based rust effect washes and rain marks.



27

I first burnished the Friul model tracks using AMMO's Track Burnishing product. I then airbrushed them in various rust tones, following up with similar-colour washes



29

For the ashes I simply used cigarette ash, gluing it in place with AMMO's Sand & Gravel Fixer (A.MIG-2012). This thin glue can simply flow across powdery substances, fixing them in place. (EW)



## AVAILABILITY

Trumpeter 1/35 BMP-2 IFV (ref. 05584) is available from good model shops.





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KIT: AFV CLUB  
SCALE: 1/35

# Shot Kal Dalet

**Ilya Yut** returns with an iconic British tank design in IDF service.

Some tanks have passed from being mere weapons to war to cultural icons: the World War I British rhomboid designs, AND the Sherman, T-34 and Tiger from World War II. Few Cold War tanks have earned that status, but the Centurion, the first British main battle tank, developed in 1944-45 albeit too late for World War II, is surely close. It was a very successful design, widely used worldwide, and, above all, it was a perfect platform for successive upgrades over the decades.

The Centurion marked a significant step change in British tank design. It was better armed and more mobile than previous British heavy tanks and had the mobility of the Cruiser tank concept. It first saw action in the Korean War but didn't participate in much of the tank-vs-tank combat for which it was design. It was exported to nearly twenty other nations, and over the decades it was upgraded to meet the changing demands on MBTs. Centurions of different nations saw action in the Middle East, South-East Asia

and Africa. Its finest hour was in 1973 during the Yom Kippur War when Israeli tankers, manning Centurion tanks, stopped the Arab onslaught on both fronts against overwhelming odds.

Domestic Centurion upgrades included the replacement of the 17pdr gun with an 84mm and eventually the famous L7 105mm cannon. Its armour protection also increased over the years. Special versions and experimental versions were also built,

some of them are available as 1/35 models. The

most extensive modifications of the Centurion were those made by South Africa (Olifant 1 & 2) and Israel. In the IDF the British tank underwent multiple





improvements over several decades of its service. Most of them were eventually converted into heavy APCs for infantry and combat engineers. The PUMA combat engineers vehicle is used extensively in the current Gaza conflict. This vehicle retains the modified lower hull of the original tank with multiple modifications including the powertrain, suspension, superstructure and various electronic improvements.

All Centurion tanks in Israeli service were eventually equipped with the L7 gun. Another major improvement was the replacement of the engine and transmission to improve the range and reliability. The IDF Centurions were renamed 'Shot', the Hebrew word for whip. Those fitted with an AVDS-1790 2AC diesel engine were called Shot Kal.

The word 'Kal' can directly translated as 'light' or it might be a derivation of Continental, the manufacturer of engine maker. Versions of Shot Kal were then named with Hebrew letters Aleph, Bet, Gimel and Dalet that correlate to the letters A, B, C and D in the Latin alphabet. The Dalet version was introduced in the mid 1980s. Its most prominent features were Blazer ERA blocks (already introduced on Gimel), the thermal sleeve for the L7 gun, and an improved fire control system. Its improved external components also featured a wind sensor and a new gunner's sight.

### The Kit

For many years modellers wanting a 1/35-scale Centurion had to make do with the old Tamiya kit, released in 1971 (Academy also released a Centurion based on the Tamiya kit, while Nichimo had a motorised version in their catalogue). Then, in 2005, AFV Club released their newly tooled Centurion Mk. 5/1 and since then they have slowly added more version (now thirteen different kits). More recently Amusing Hobby have joined the fun and released their own range of Centurion kits.

I built AFV club Centurions before and they are good kits, albeit not perfect. The vinyl tracks, for example, are a weakness. The Amusing Hobby kits look nice, but don't seem as detailed as the AFV Club version. In the end, my choice of kit was determined by a big 'Black Friday' discount at an online model shop. I had had the metal tracks in my stash for years, so the vinyl tracks wasn't an issue. My biggest concern was the road →

## PAINTING AND WEATHERING: STEP-BY-STEP



1

The model was first primed with AMMO A-Stand Black Lacquer Primer (A.MIG-2351). The first coat, Tamiya Khaki Drab (XF-51), would act as a shadow for the subsequent IDF armour colour.



2

The colour of IDF is always controversial. Over the years it changed from Olive Drab to Siani Grey, with that in turn developing from a sandy khaki to a darker khaki shade. Light and environmental conditions can change the appearance of this colour dramatically in the field and this mutability is reflected in the various colours developed by model paint manufacturers. I opted for a greenish khaki colour mixed from Tamiya Khaki (XF-49), Buff (XF-57) and Green (XF-5). The colour was 'modulated', moving gradually from darker to lighter shades of the colour. I airbrushed the gradations freehand, but you can always use masking tape for a sharper demarcation of the various shades.



3

I added White (XF-2) for some highlights. The result was unrealistic, but I was confident that subsequent steps would soften the effect without losing it completely.



4

Then, to add more depth, I airbrushed a very thinned layer of Clear Green (X-25) mixed AK Interactive Real Color IDF Sand Grey (RC095). Small details were then picked out in a paler tone of my based colour mixed from Vallejo acrylics.



## COLD WAR SHOT KAL DALET

5



Paint chipping is an important effect on IDF armour. It's a long process which I find quite stressful. First, I added sponged effects, refined with a fine paintbrush, using a lighter shade of the base colour. I then layer these using a darker shade, principally AMMO Chipping (A.MIG-0044) and Medium Rust (A.MIG-0040), inside the existing light scratches, chips and scrapes.

7



With the decals applied, I airbrushed a couple of coats of Satin Varnish (A.MIG-1256) before applying the washes. You can use one of the many commercially available enamel-based washes for this, but I decided to mix my own from AMMO's Oilbrushers thinned with Enamel Thinner. Washes can be applied using dedicated products, but this time I decided to mix my own dark wash using AMMO oilbrushers diluted with Enamel thinner. The wash was run around the details and any excess removed with a brush damp with Thinner.

9



Rust effects, especially on the sheet metal stowage bins and other similar parts, were applied with a combination of a Red Tile Oilbrusher (A.MIG-3525) and Light Rust Wash (A.MIG-1004).

11



Dust effects are important on IDF armour and to imitate dry dust on the model, I mixed pigments with Enamel thinner to a paste consistency. The paste was then applied to various parts of model. It dries to a much lighter shade and any excess can simply be brushed away with a dry brush or cotton swab.

6



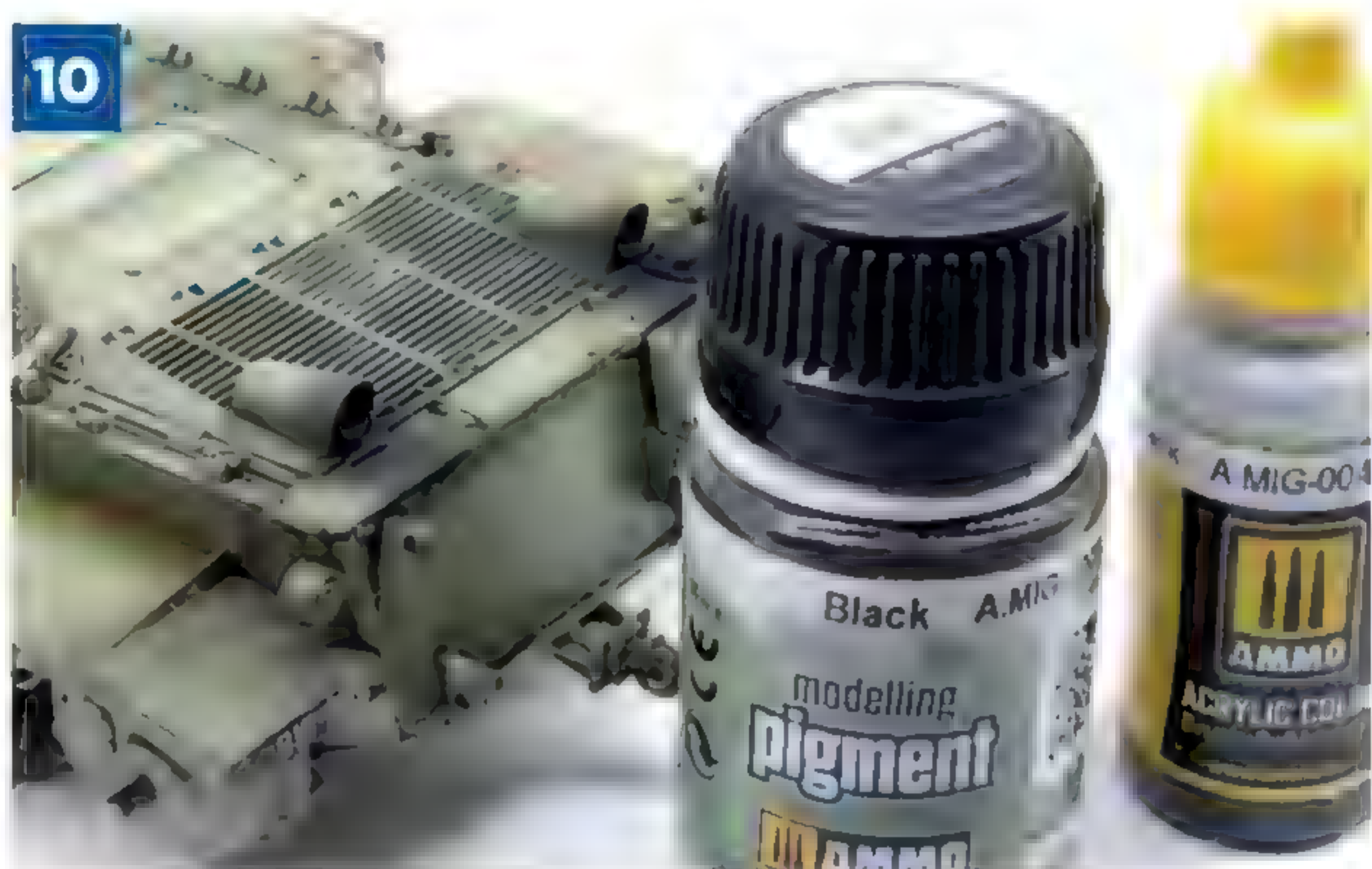
AFV Club's decals are poor. It's almost impossible to avoid silvering, even when using strong decals solutions products that work well with most other decals. I should have used aftermarket decals, but a lesson learned for next time.

8



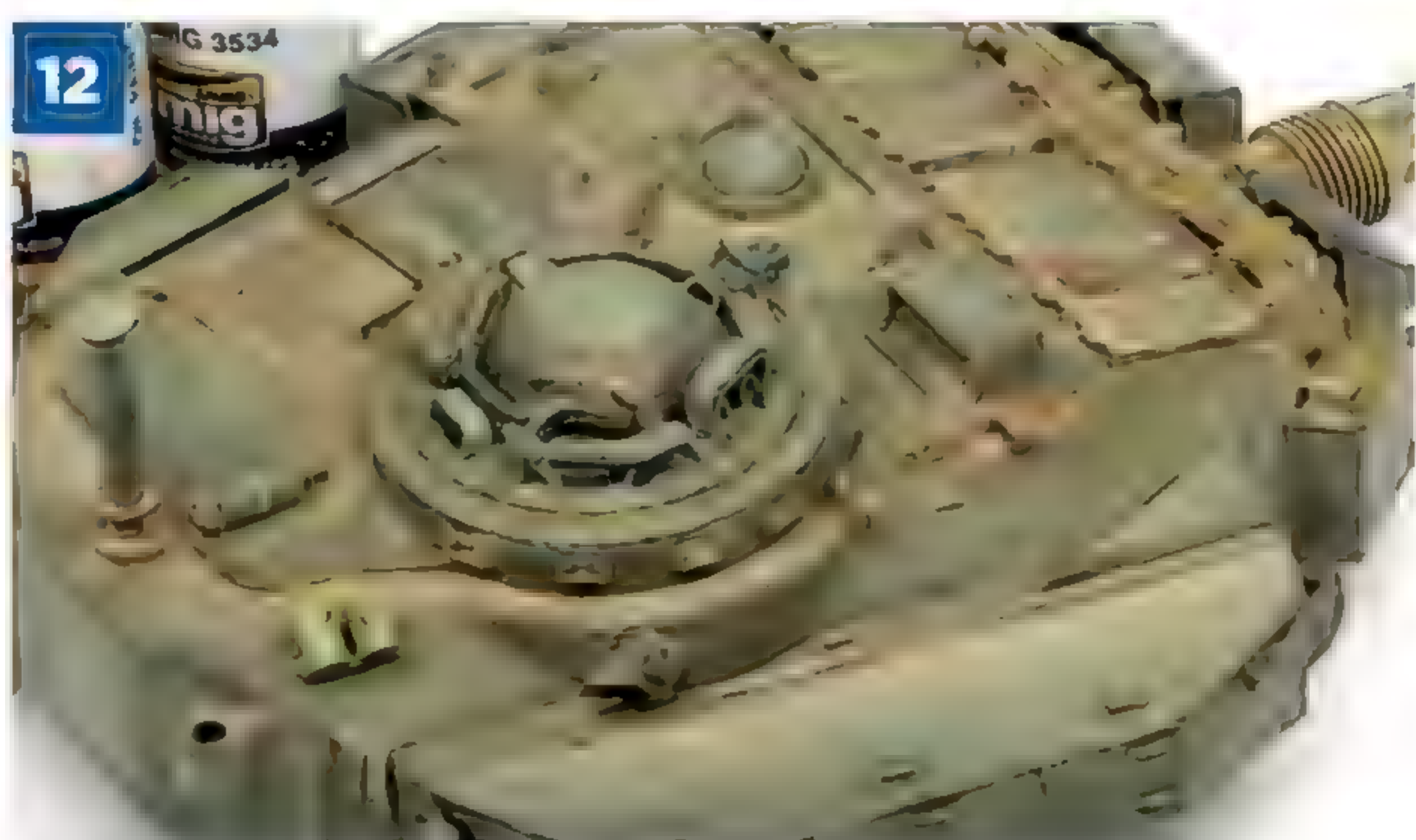
The Oilbrushers were also used to improve the contrast and gradients. I mixed several into a light, greenish khaki shade then blended them gently with a soft flat brush. If you need to use Thinner, make sure the brush is almost dry, or you will simply remove the oil paint.

10



The exhaust soot was first airbrushed using Black (A.MIG-0046) and then refined with Black pigment (A.MIG-3001)

12



Further dust effects were added by blending oil paints. While pigments create a sharp contrast, oil blending results in smoother transitions between the dusted and 'clean' areas.



→ wheels. AFV Club provides tyres with the wheel rims molded together in a vinyl-like material. Aftermarket resin roadwheels are available, but once I had stuck the tyres to the plastic wheel parts, I didn't have any problems with painting them.

The kit was built out-of-the-box with only minor improvements. These included modelling some damage to the roadwheel tyres, adding wiring, and aftermarket headlight reflectors. The kit contains some useful photoetch parts, and I decided not to use any aftermarket sets. Once the model was finished there were quite a few spare parts left, most importantly, machine guns and the turret mortar. They don't need to be wasted, however, if you like IDF armour and can be used to update the Magach and Merkava kits by Tamiya and Academy.





13



→ The lower hull was first airbrushed a light earth colour, then pigments were applied in the same way as on the turret and upper hull. Darker earth tones, representing wet mud, were spattered across the lower hull using enamel-based products, an old brush and a toothpick.

14



The wheels received the same treatment, as well as some metallic paint on the idlers and drive wheels. Some wet effects and grease stains were selectively applied on several roadwheels.

15



I added some individual rainmarks and dirt streaks with Oilbrushes, blending then into the surface with vertical strokes of a fine brush damp with Thinner. were roughly applied with a paintbrush using oilbrushers.

16



More pronounced mud streaks on the lower hull began with the application of enamel-based mud effects. They were then blended with vertical strokes of a saw-shaped brush moistened in Enamel Thinner.

17



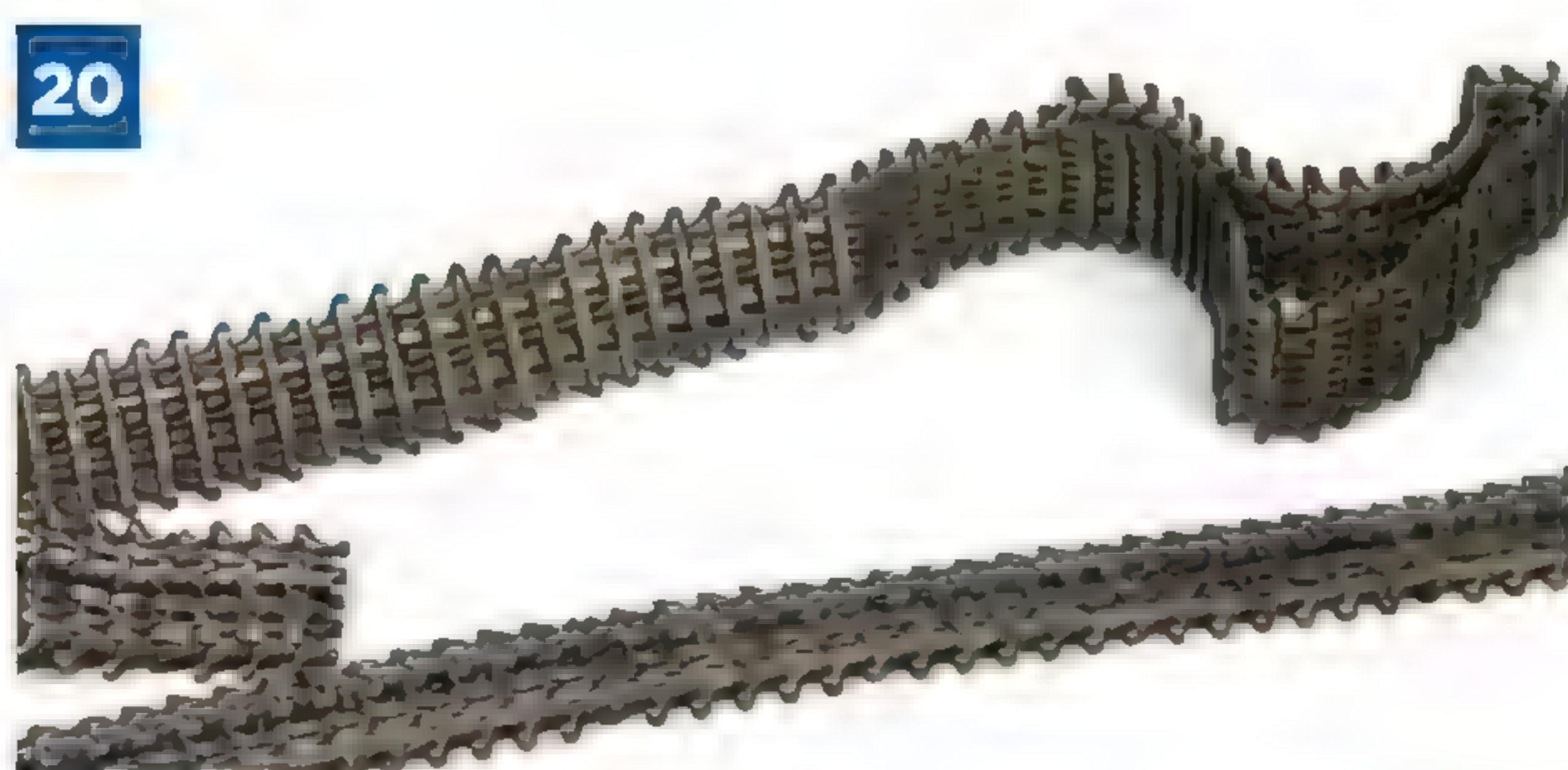
The effect was further enhanced by spattering with darker mud effects. Using several different shades makes for a pleasing appearance.

19



The metal tracks were assembled, then cleaned and degreased with airbrush cleaner. This step facilitates the chemical blackening reaction. They were then dipped in AMMO Burnishing Fluid (A.MIG-2021) for several minutes. It's important to agitate the tracks to ensure every part of their surface meets the fluid.

20



Once dry, the tracks were washed with a mixture of the pigments used previously, missed with Enamel Thinner. As the tracks are metal, there is no danger of the thinner attacking the plastic, a peril when using plastic individual links. Once dry, darker mud tones were added using enamel-based products. Finally, a light rub with sandpaper exposed the bare metal where the tracks contacted the ground.





COLD WAR SHOT KAL DALET



The IDF Centurions were renamed 'Shot', the Hebrew word for whip.





21



I didn't like the moulded-on roller shutters and decided to make replacements for them from scratch. The area was measured and sanded. I used styrene sheets and thin (0.5mm or less) round rods to imitate the roller shutters and the frame, following fellow MMI contributor Rick Lawler's guide in one of his Somalia-themed YouTube videos.

23



The base was made from Styrofoam and covered with DAS air-drying clay. I made the impression of the tank tracks using the kit's vinyl tracks and fixed some small stones and sand on the clay.

22



The house was painted in vibrant colours. The kit-supplied poster wasn't appropriate for Lebanon, so I did some research and found some companies that were operating in Beirut at the time and added my own shop name and poster.

24



The groundwork was then airbrushed various mud and earth tones, and the larger stones picked out in various colours. Washes were then added over the groundwork, toning down some of the more vibrant individual stones, and I added the same pigments as used on the tank. Finally, I added the building, integrating it into the groundwork with some more sand and small stones.

## → Basing the Shot

I decided to place the completed Shot Kal on a small base. The Middle Eastern house came from the RT Diorama range. This company produces a wide variety of buildings and ruins from plaster. At first I was hesitant to work with medium, as it differs significantly from the more familiar plastic and resin. I needn't have worried. The

pieces were joined with PVA and superglues and any gaps filled by mixing a little more plaster. The plaster is also very easily sanded and carved. RT Diorama's Iraqi House doesn't exactly match the Lebanese style, as I was told by fellow modeller Malek Zouki, so instead of the smaller bricks, I made some larger blocks by filling the gaps with plaster and re-scribing the lines between them.

## Conclusion

Finally, I placed the Shot Kal, similarly integrating it into the groundwork with some pigments. Building the base made this a more involved and longer project than usual, but I was delighted with the result which captures the menacing appearance of this iconic Cold War Warrior in IDF service. **END**



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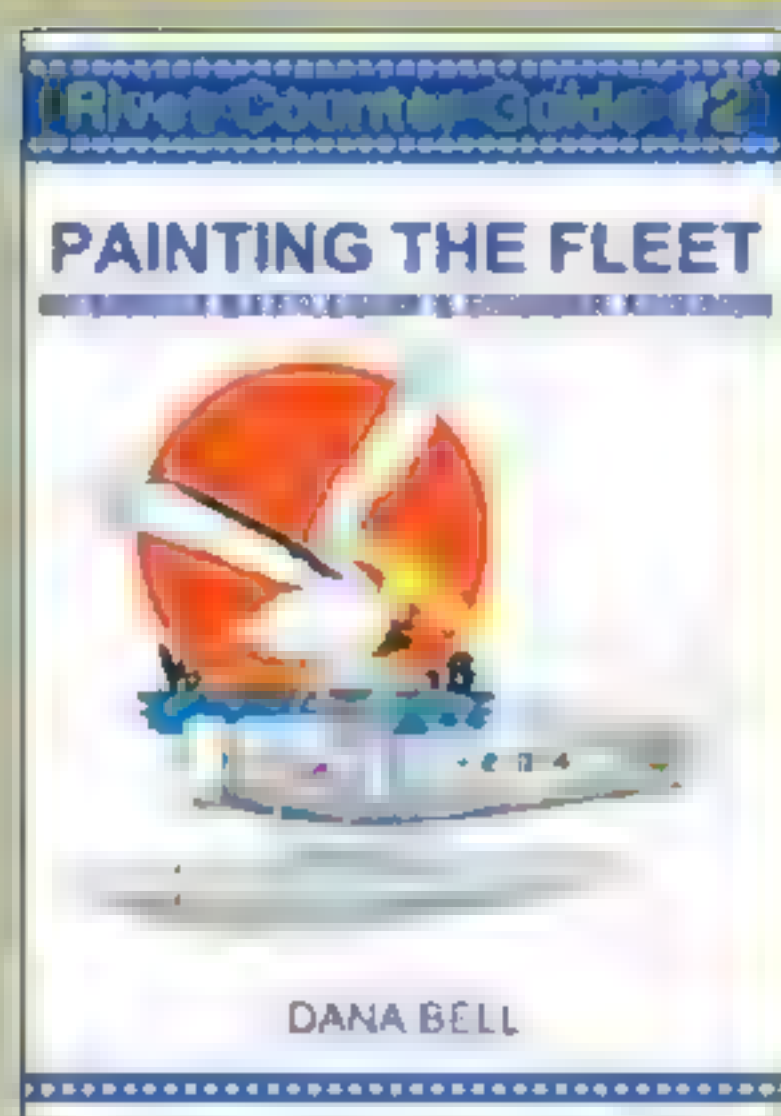
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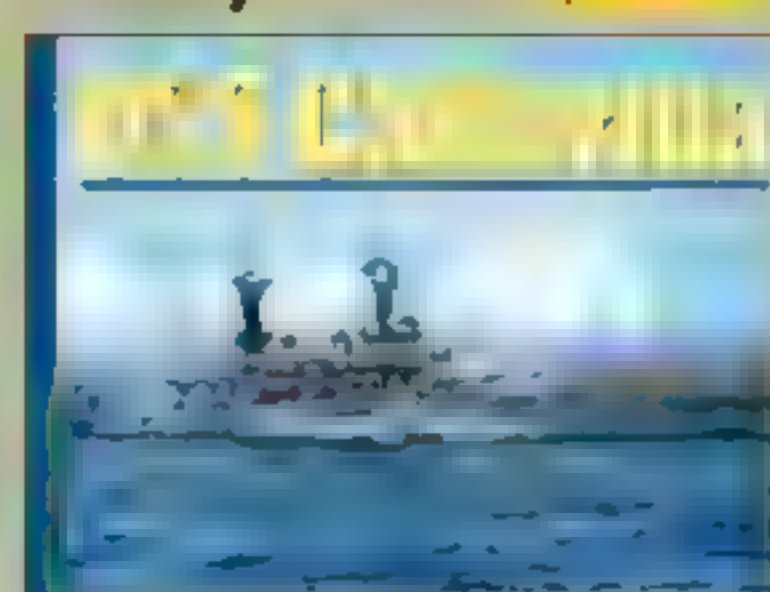
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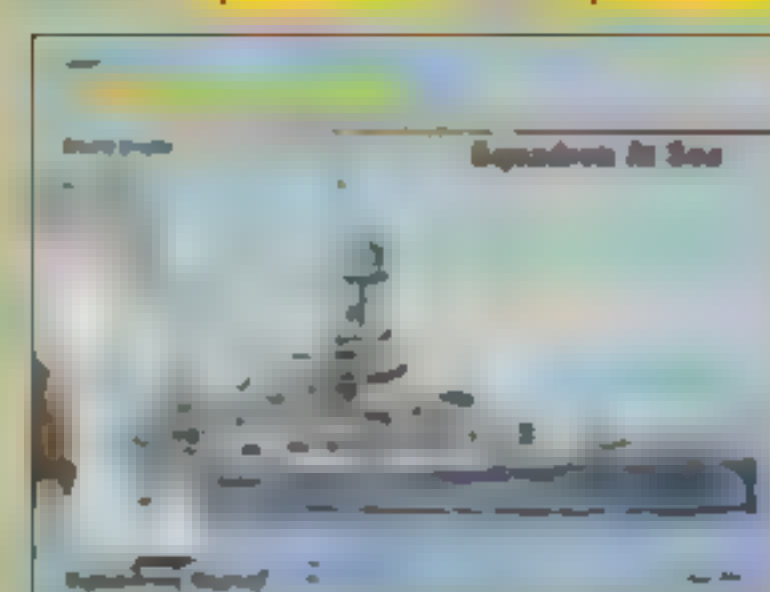
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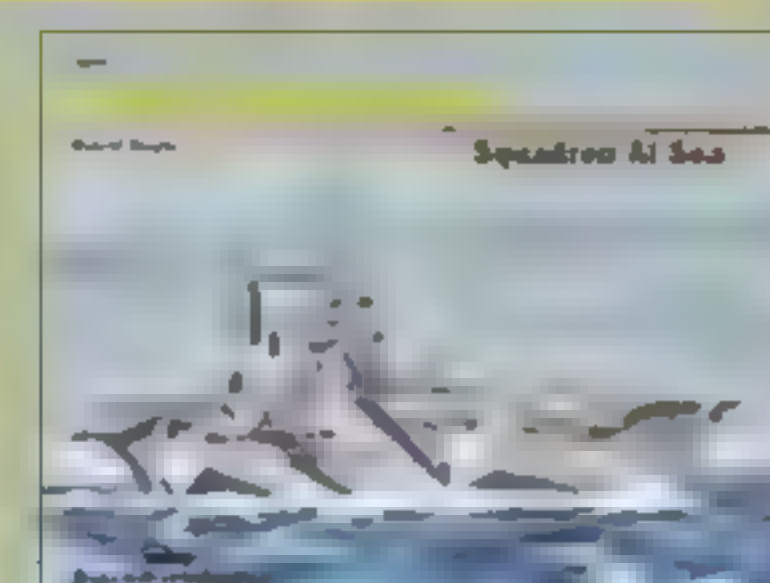
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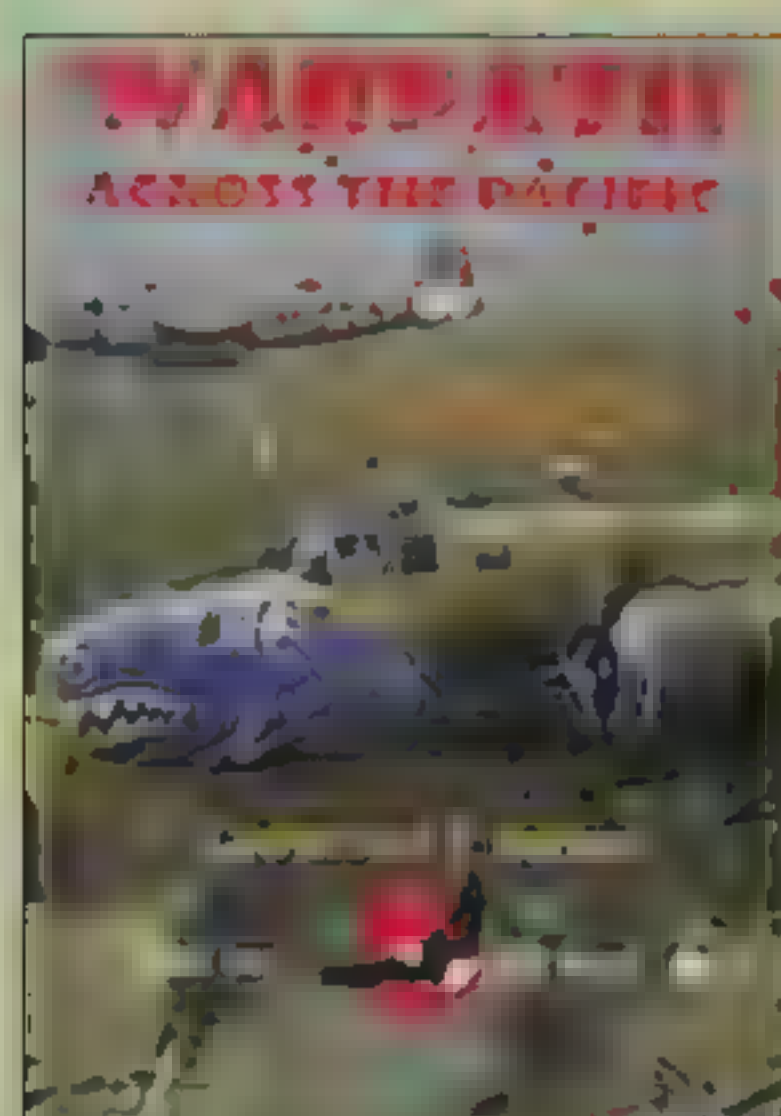
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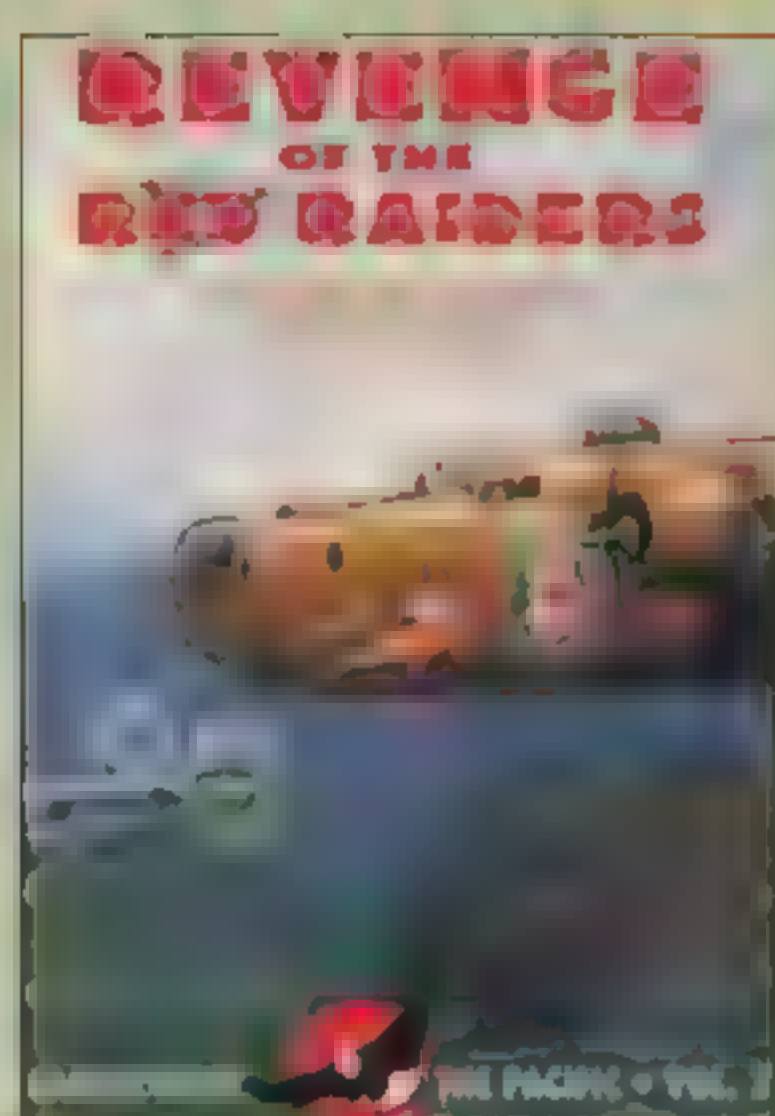
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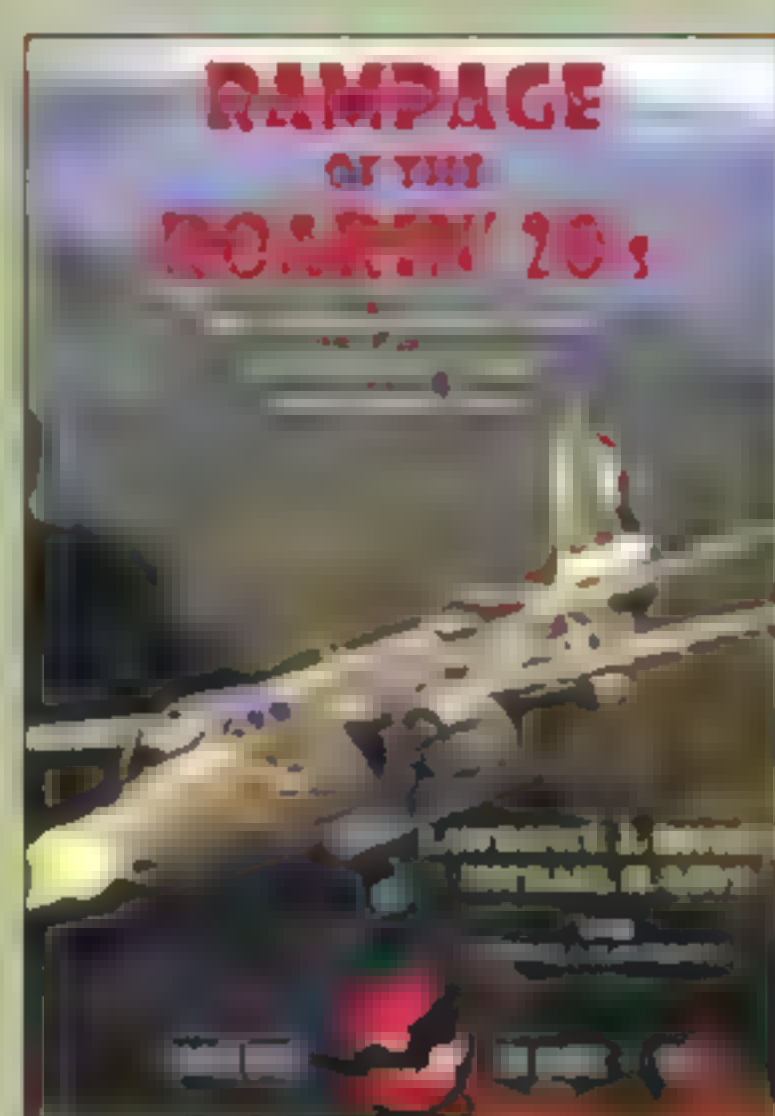
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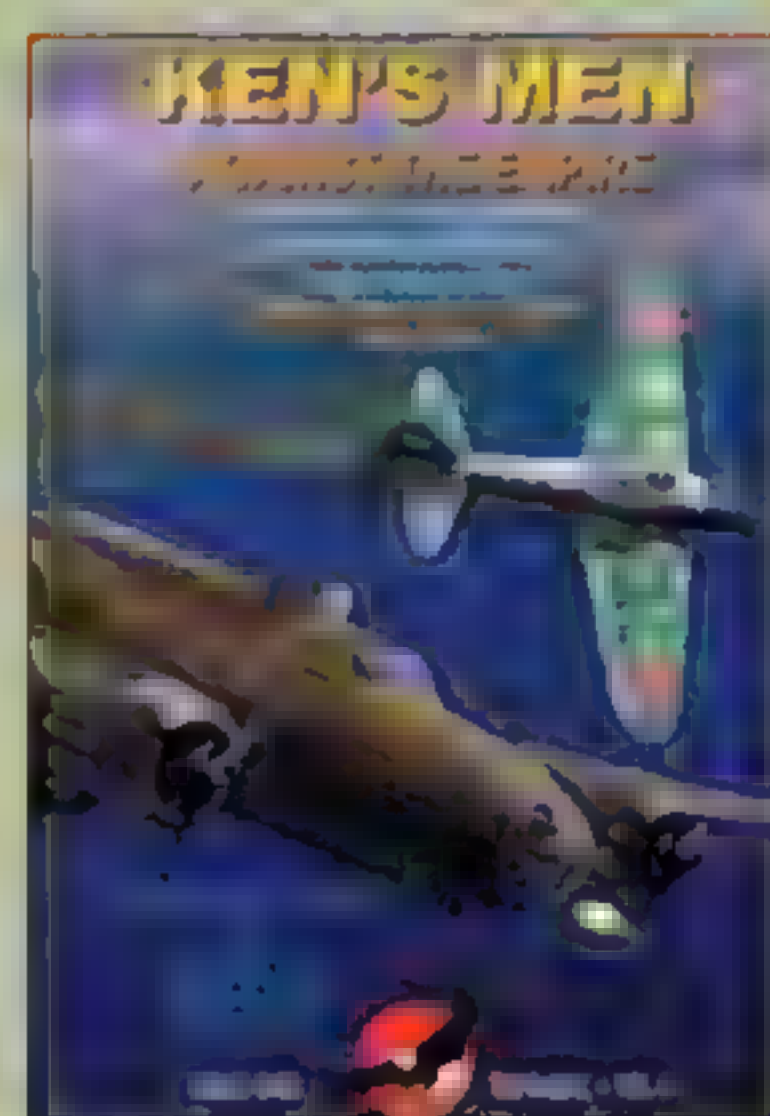
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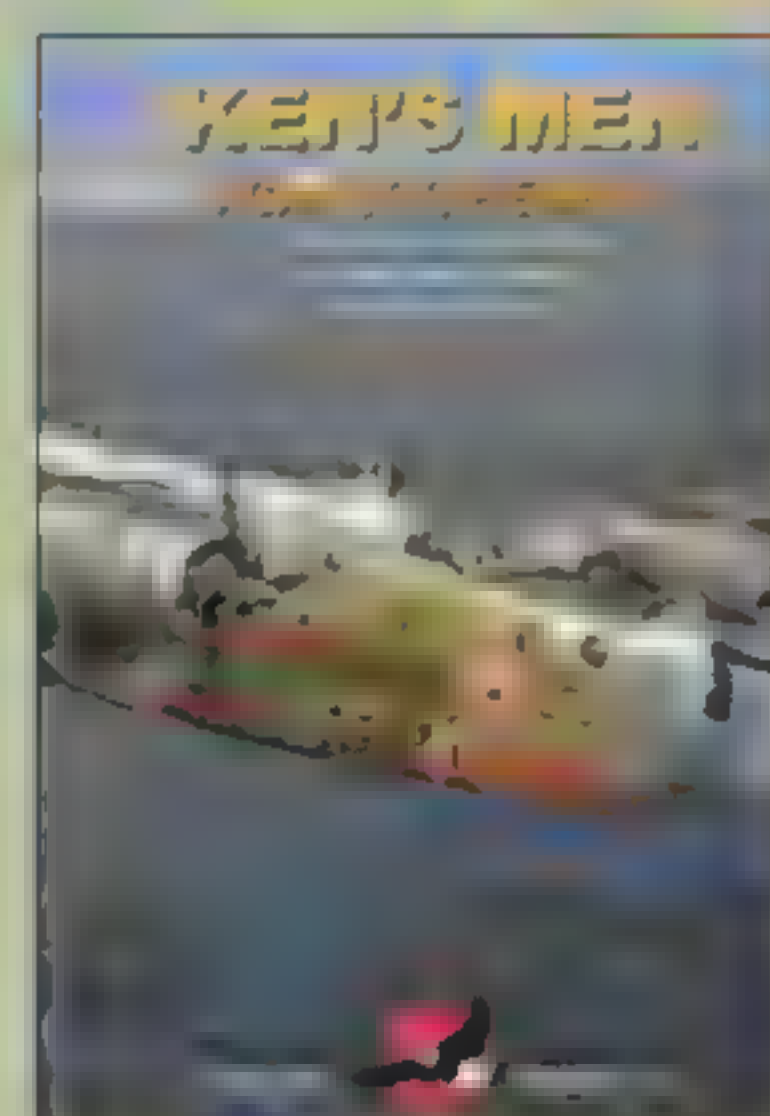
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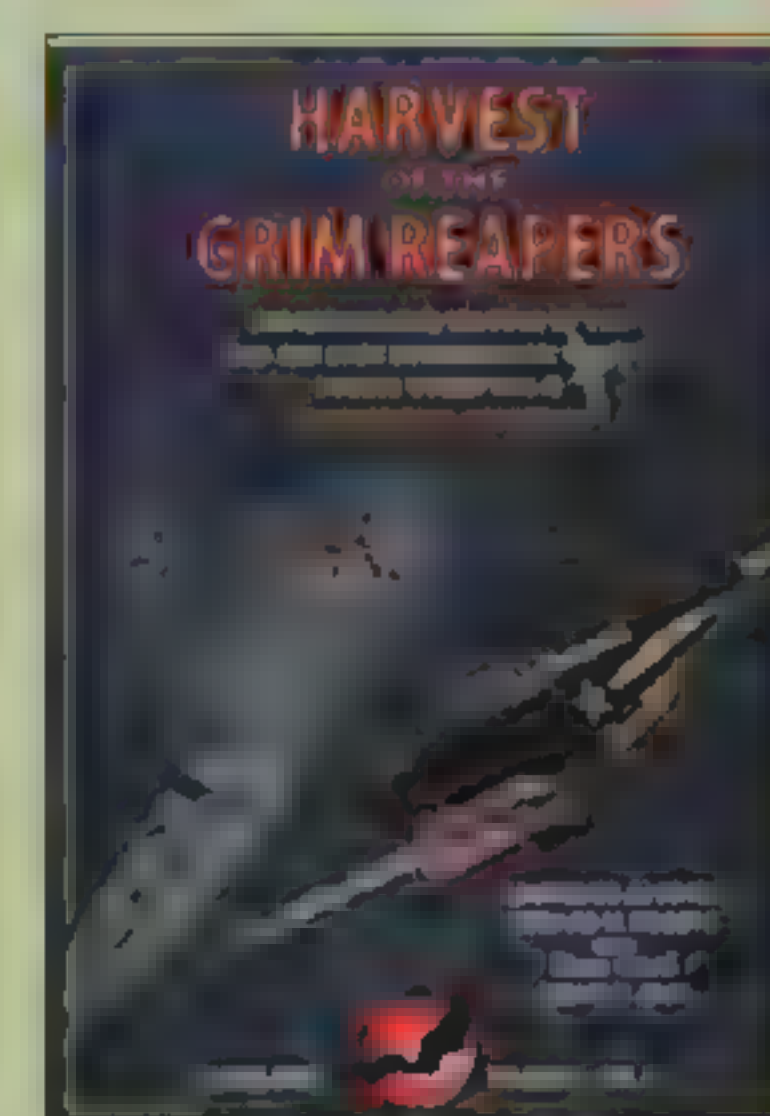
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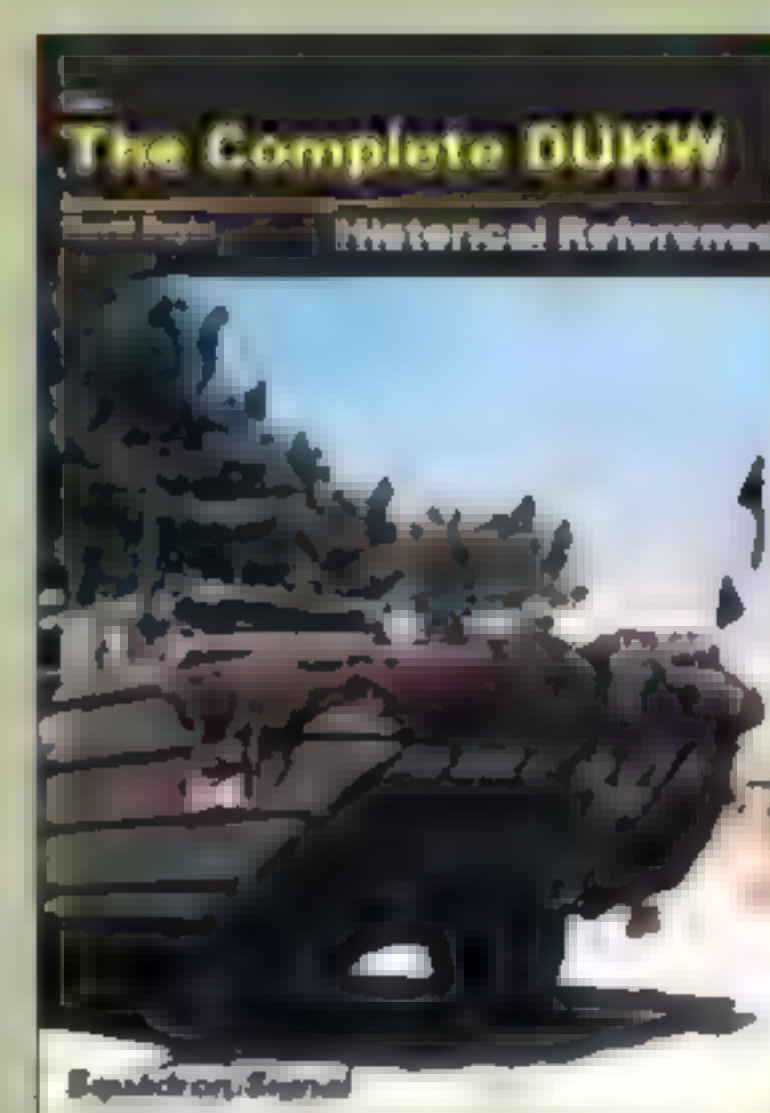
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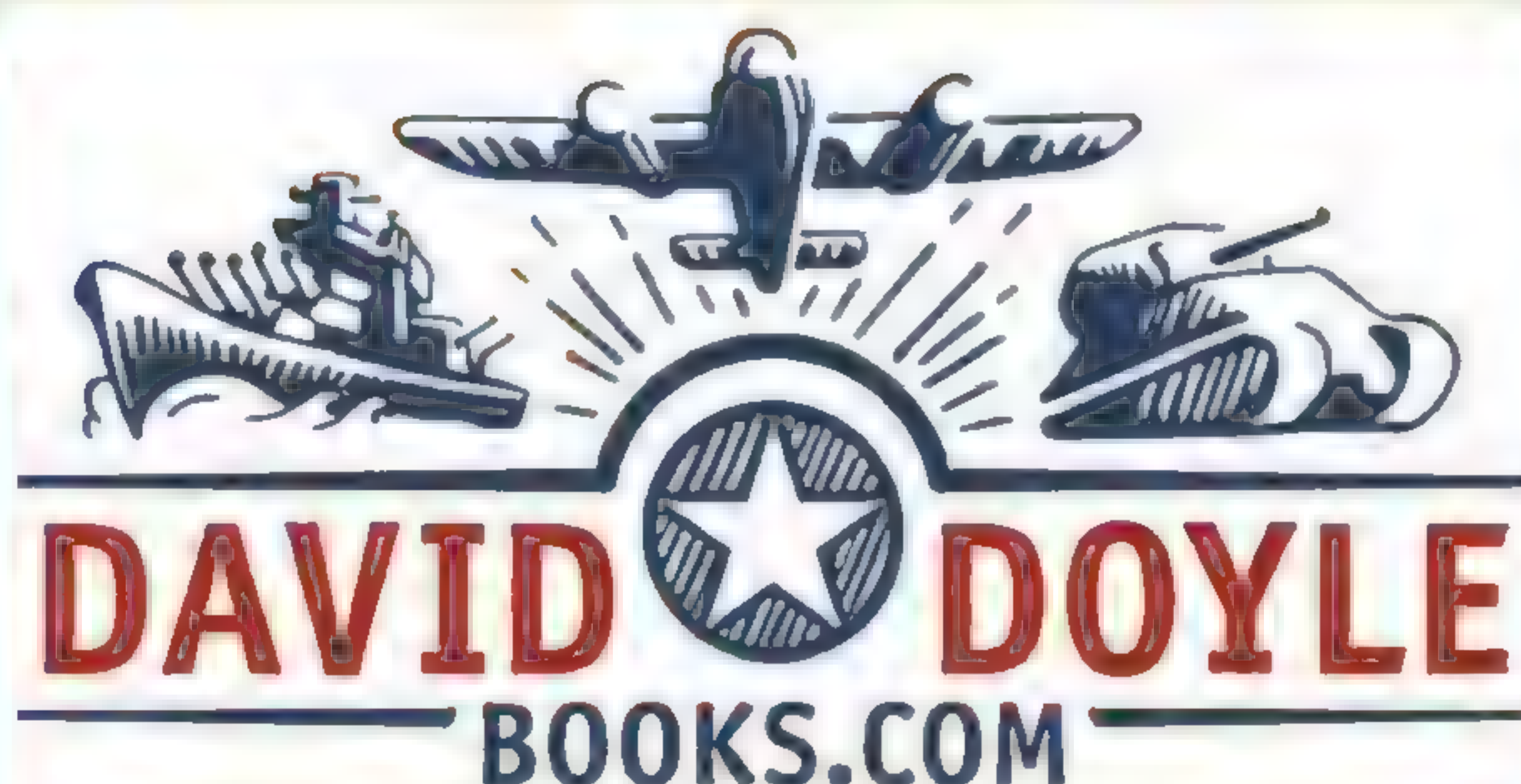


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# WORDS & PICTURES

A roundup of the latest military titles

## Tanks in the Philippines 1944-45: The Biggest Armored Clashes of the Pacific War (New Vanguard 334)

Author: Steve Zaloga

Publisher: Osprey Publishing

ISBN: 978-1-47285-9-402

Price: £12.99(pb)

World War II is generally considered to have seen the development of armoured warfare as we understand it today, and there are countless books on individual tanks, battles and the evolution of armoured warfare between 1939 and 1945. Most concentrate on the European and North African theatres of war, so this latest volume in Osprey's New Vanguard series is especially welcome. It is the first book to examine the Japanese and American tank forces in the Philippines campaigns, which saw the biggest armoured clashes of the Pacific War. The Philippines saw the most extensive tank combat of any single theatre in the Pacific War.

In this book, Steve Zaloga explains the capabilities of the tank forces involved and how they fought. He explains how while the first tank clashes on Leyte were relatively small scale, the fighting for Luzon, including the capital Manila, saw the extensive use of tanks by Pacific standards, and indeed, Luzon was the only place where a Japanese armoured division was thrown into combat against US forces. While there was some tank-vs-tank combat in northern Luzon when the Japanese 2nd Tank Division faced separate US Army tank battalions, most tank fighting in the Philippines involved their use in the traditional infantry support role, including in the largest urban battle of the Pacific War, the horrific struggle for Manila. Packed with rare archive photos and detailed original illustrations of the tanks, this book offers a concisely detailed account of the neglected role of armour in the recapture of the Philippines. Zaloga's typically erudite and accessible text is complemented by some superb artwork by Felipe Rodriguez. Our thanks to Osprey Publishing for this month's review copies. Osprey books are available from all good booksellers ([www.ospreypublishing.com](http://www.ospreypublishing.com)).

David Grummitt

## Eighth Army Soldier vs Italian Soldier: El Alamein 1942 (Combat 79)

Author: David Greentree

Publisher: Osprey Publishing

ISBN: 978-1-47286-3-416

Price: £15.99(pb)

The war in the Western Desert continues to hold a fascination for students of World War II. This was very much a soldiers' war, with well-trained and motivated troops fighting across an area largely empty of civilian settlements and major urban centres. By July 1942, the Allied troops fighting in North Africa, the multinational Eighth Army, had withdrawn to the El Alamein line, the last position stopping their German and Italian opponents from reaching the Suez Canal. This absorbing study assesses the Commonwealth and Italian infantrymen pitted against one another during the First and Second battles of El Alamein in 1942. Featuring full-colour artwork, carefully chosen archive photographs and incisive analysis, it casts light on the Commonwealth and Italian infantrymen who participated in the seesaw battle for control of the North African coastline as it entered its decisive phase, played out over two bloody engagements during July-

October 1942.

Although Allied and Axis commanders saw armour as the decisive weapon in the Desert War, the infantry fielded by both sides would be key to the outcomes of the two El Alamein battles. While the majority of the 96,000 Axis troops at the first battle were Italian, mostly infantry, Commonwealth forces provided the greater part of Eighth Army's fighting strength.

During the First Battle of El Alamein in July 1942, Italian infantry units clashed with Indian troops at Ruweisat Ridge and Australian forces at Makh Khad Ridge; both battles are assessed in this book, along with the defence mounted by New Zealand troops at Miteiriya Ridge during the Second Battle of El Alamein that October. This is a well-illustrated and expertly written account that sheds some new perspectives on a well-known theatre of World War II.

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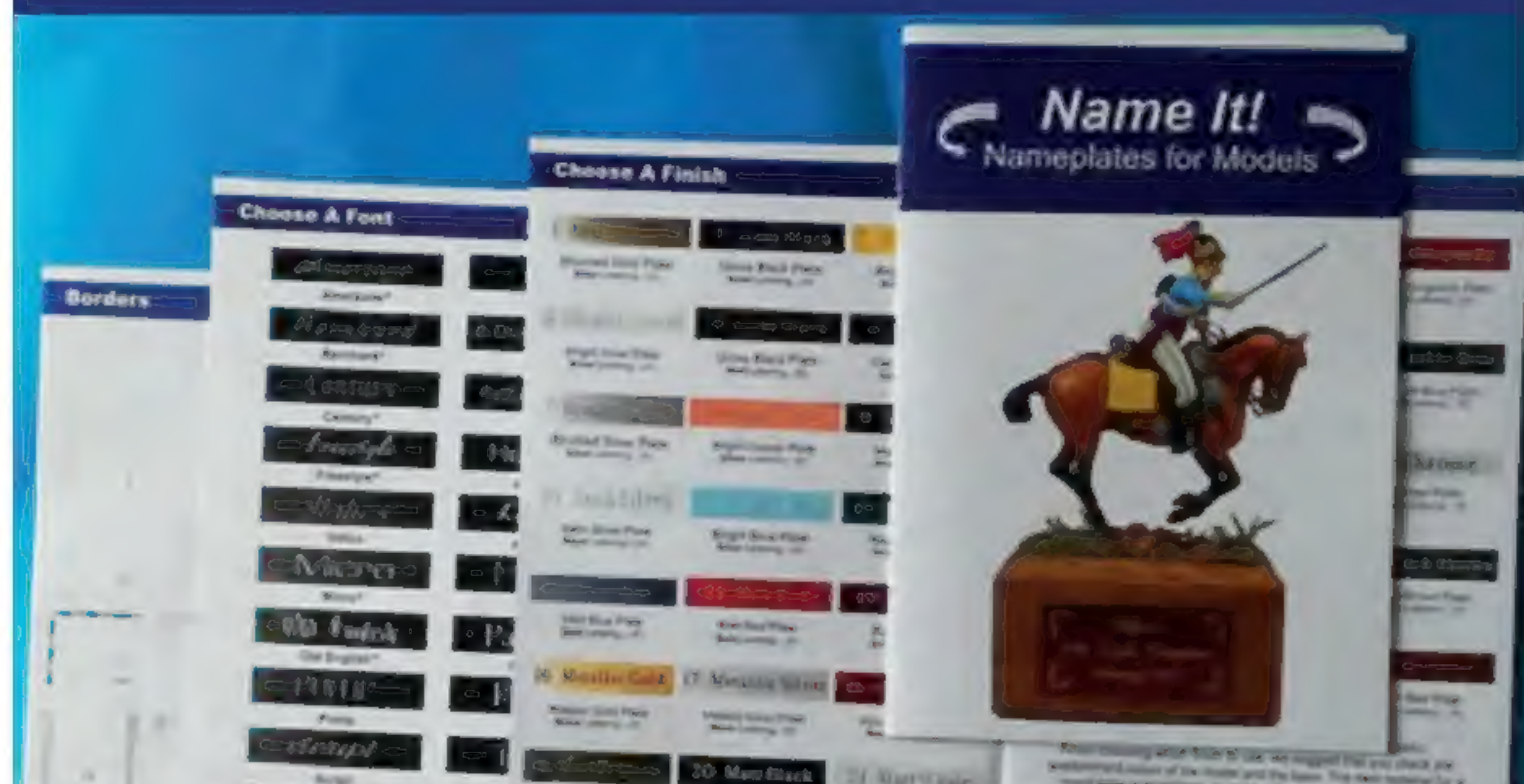
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